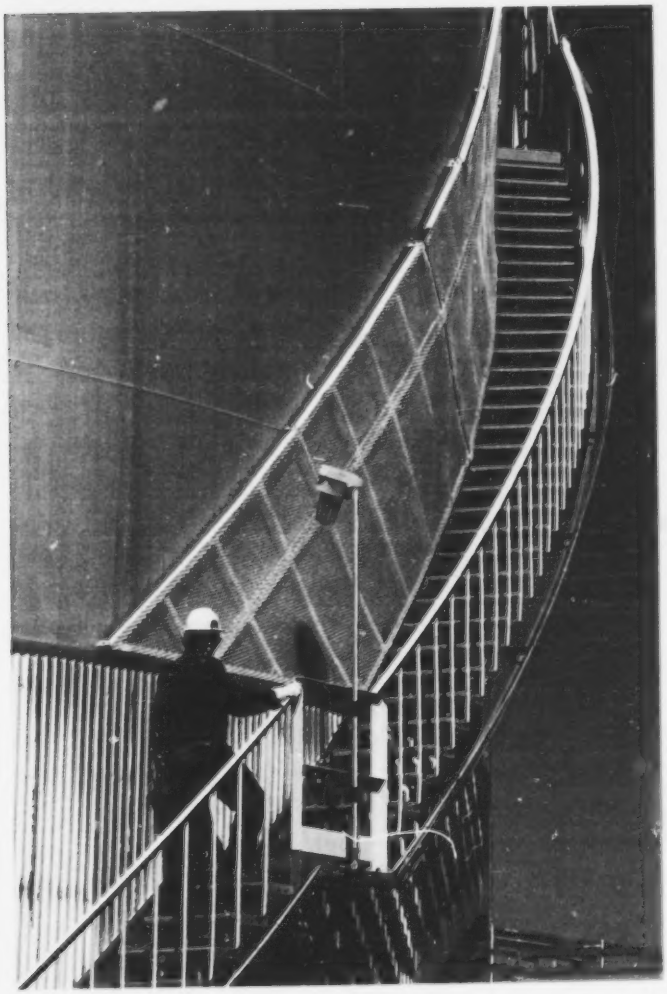
ST99-2006

EUB

EUB Provincial Surveillance and Compliance Summary 2005

June 2006



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Executive Summary

This year the Alberta Energy and Utilities Board (EUB) is launching the *EUB Provincial Surveillance and Compliance Summary (ST99-2006)*, which combines and replaces the previous reports *ST57: Field Surveillance Provincial Summary* and *ST99: Proactive Compliance Report*. As in the past, this new report details the oil and gas industry's compliance with EUB requirements, the enforcement actions taken in cases of noncompliance, and the wide range of activities carried out by EUB field staff.

Record Activity Levels

Industry activity levels continued to rise in 2005, breaking records for drilling and well servicing. In the last five years nearly 84 000 wells have been drilled in Alberta. But despite operating at such a fast pace, the energy sector has managed to improve its compliance with EUB regulations.

Energy companies operate almost 206 000 nonabandoned wells, 18 449 oil batteries and associated satellites, 815 gas plants, 10 291 gas batteries and compressor stations, and a pipeline network of more than 350 000 kilometres (km). Each year the EUB inspects a portion of this vast energy infrastructure to make certain that projects are constructed properly and operated safely.

Operating out of nine EUB Field Centres throughout Alberta, field staff inspect construction, operation, and abandonment operations at oil, gas, and oil sands facilities—including pipelines, compressors, and processing plants. They respond to emergencies and public complaints on a 24-hour basis and ensure a consistent approach to enforcement of requirements.

EUB requirements ensure orderly and responsible energy development, while at the same time protecting public safety, minimizing environmental impacts, improving conservation, and guaranteeing equity.

When a noncompliance is identified, the EUB triggers a process that has an established policy for EUB enforcement actions. As outlined in *Informational Letter (IL) 99-4: EUB Enforcement Process, Generic Enforcement Ladder, and Field Surveillance Ladder*, through 2005 enforcement actions have been determined by the severity of the noncompliance event and escalated for subsequent noncompliance or failure to comply with the EUB's corrective order. (Effective January 1, 2006, *Directive 019: EUB Compliance Assurance—Enforcement* replaced *IL 99-4*.)

The energy industry's proactive efforts in meeting and exceeding EUB requirements have resulted in overall high compliance rates. In 2005, the EUB carried out about 6200 enforcement actions, of which a mere 6 were appealed to the EUB's Enforcement Advisor.

In the Facilities Applications Group, the number of initial audits grew to 1555 in 2005 from 1092 in 2004, a 42 per cent jump.

Proactive compliance in Facilities Technical increased to 97 per cent in 2005 from 90 per cent in 2004. Proactive compliance in Wells Technical increased to 90 per cent in 2005 from 84 per cent in 2004.

The total number of initial inspections/investigations, including well site inspections, increased from 15 379 in 2004 to 16 872 in 2005. The oil and gas industry continued to maintain a high compliance record. Minor unsatisfactory inspections increased slightly to 20.8 per cent of all inspections in 2005 from 20.5 per cent in 2004, while major and serious unsatisfactory inspections decreased slightly to 1.8 per cent in 2005, compared to 2.0 per cent in 2004.

In 2006, EUB staff will continue to focus on pipeline corrosion, noncompliant licensees, air monitoring activities, reduction of odours, and improving communication with all Albertans.

Enforcement

Companies that fail to meet requirements or follow EUB direction are subject to escalating enforcement consequences. Enforcement actions always include deadlines for fixing a problem and may be reinforced by penalties, such as temporary or long-term suspension of operations.

In 2005, the EUB suspended a total of 91 facilities, including 33 drilling rigs, 30 pipelines, and 17 oil production facilities. In the previous year the EUB suspended 118 facilities. Since 2000, 825 facilities have been suspended.

Drilling and Servicing

Increased activity creates challenges for both industry and the EUB to ensure that drilling and servicing operations are carried out safely while meeting the strictest standards.

Ten blowouts were recorded during the drilling of 20 545 wells in 2005. Nine of these were freshwater flows and the tenth involved a sweet gas well. There was no significant impact on the public and only minimal impact on the environment as a result of these events. In addition, 128 kicks were recorded during drilling operations in 2005, or roughly 6 kicks per 1000 wells drilled.

Six blowouts occurred during servicing operations in 2005, two on sour wells and four on sweet wells. Five of the six blowouts were attributed to equipment failure and one to operator error. One of the blowouts was caused by an explosion that resulted in one worker being killed and two workers injured.

In 2005, fourteen blowouts were registered in the "other" category, all of which occurred on sweet wells. Six resulted from third-party damage when equipment struck a well. The remaining eight blowouts were caused by equipment failure. These blowouts were of short duration and had minimal impact on the public or the environment.

In addition, *Directive 036: Drilling Blowout Prevention Requirements and Procedures* was revised in 2005. The update was released in February 2006.

Pipelines

The pipeline failure rate fell to 2.3 per 1000 km of pipeline in 2005 from 2.4 per 1000 km in 2004. The majority of failures occurred in smaller-diameter gathering lines, primarily the 60.3 millimetre (mm), 88.9 mm, and 114.3 mm systems.

Field staff conducted 446 pipeline construction and test inspections in 2005, of which 411 were satisfactory, 19 were minor unsatisfactory, 15 were major unsatisfactory, and one was serious unsatisfactory. All unsatisfactory inspection items were brought into compliance. This compares to 564 pipeline construction and test inspections in 2004, of which 536 were satisfactory, 18 minor unsatisfactory, 9 major unsatisfactory, and one serious unsatisfactory.

Although corrosion continued to be the main cause of pipeline failures in 2005, there were fewer internal corrosion failures (420) compared to historical data. External corrosion remained relatively constant at 116 in 2005 compared to past years, with reducing failure incidents in older pipeline coating systems continuing to present challenges.

When a failure occurs, the licensee must confirm the integrity of the entire pipeline segment, perform an engineering assessment on the pipeline system that it operates in, and outline measures to prevent further occurrences. When the cause of the failure is not readily identifiable, the licensee must perform a failure analysis.

Sulphur Recovery

Sulphur emissions have decreased 26 per cent since 2000, from 78 000 to 57 000 tonnes in 2005. Since 1974, operators of Alberta gas plants have reduced sulphur emissions by about 75 per cent. Sulphur recovery efficiencies at gas plants recovering saleable sulphur are now at 98.9 per cent.

Spills

The number of spills declined in 2005 to 1429 from 1443 the previous year. Of those 1429 spills:

- 62 (4.3 per cent) were priority 1—those that pose the most serious environmental and public impact
- 247 (17.3 per cent) were priority 2—those where a significant volume has been released or the impact on the environment is a concern
- 1120 (78.4 per cent) were priority 3—low-volume spills on site or short-duration releases of sweet gas

As in past years, equipment failure and pipeline corrosion were the leading causes of liquid spills in 2005.

Inspections were carried out on 689 spills, resulting in 583 satisfactory inspections, 58 minor unsatisfactory inspections, and 48 major unsatisfactory inspections. The EUB did not register any serious unsatisfactory inspections.

The spill volumes for hydrocarbon and produced water in 2005 were 4958.8 cubic metres and 13 158.9 cubic metres respectively. This represents a 42.1 per cent decrease in hydrocarbons spilled and a 13.7 per cent drop in produced water spilled compared to 2004.

The EUB strongly backs spill cooperatives and provides support to the Western Canadian Spill Service (WCSS) to enhance spill response preparedness throughout the province. Together, the WCSS, Enform, industry, and the EUB work towards improving spill prevention programs. In 2006, the EUB will concentrate on proactive spill prevention measures at oil spill cooperative meetings and during training exercises.

Air Monitoring

In 2005, there were 768 air monitoring inspections conducted, a 42 per cent increase over the 695 inspections carried out in 2004, revealing an improvement in industry's compliance record.

The EUB has two mobile ambient air monitoring units (AMUs) equipped with analyzers capable of reading and recording hydrogen sulphide and sulphur dioxide emissions. In addition, the AMUs are capable of measuring and recording wind speed and wind direction.

Waste Management

In 2005, field staff conducted 66 waste management inspections, compared to 104 carried out in 2004. Of the 66 inspections, 40 were categorized as satisfactory, 22 minor unsatisfactory, and four major unsatisfactory. There were no serious unsatisfactory inspections.

Off-lease odours and staining/spillage were the most common deficiencies identified, and all facilities were brought into compliance. The EUB will continue to focus on waste management inspections in 2006.

Major Initiatives

The EUB has detailed emergency preparedness and response requirements in *Directive 071: Emergency Preparedness and Response Requirements for the Upstream Petroleum Industry*. As part of the inspection process, field staff determine if the licensee has an approved emergency response plan (ERP) on site, has gone over the plan with the potentially affected residents, and has assessed its capability to implement the ERP by conducting exercises.

A more detailed audit protocol for assessing a licensee's capability to implement its ERP will be introduced in 2006.

Responding to Public Concerns

In 2005, there was a 9 per cent increase in public complaints compared to the previous year. Since some complaints highlighted more than one issue, the EUB identified 1049 issues associated with 924 complaints in 2005, compared to 965 issues associated with 850 complaints in 2004.

Field staff respond to all complaints related to upstream oil and gas activities, with the goal of ensuring prompt, effective, and lasting resolution to the problems identified.

Furthermore, the EUB conducts a random complaint call-back survey each month to ensure that appropriate complaint response procedures are being used and any questions or concerns are addressed. Results of the 2005 survey indicate that

- 89.7 per cent of the individuals surveyed said their concerns were satisfactorily resolved, compared to 70 per cent in 2004,
- 56 per cent of the individuals surveyed were satisfied with the licensee's response, compared to 53.5 per cent in 2004, and
- 96.3 per cent of the individuals surveyed were satisfied with the response from the EUB, compared to 92.7 per cent in 2004.

Public Involvement

The EUB's Field Surveillance Branch participated in 34 open houses in 2005 to address concerns, answer questions, deal with issues, and improve the public's understanding of proposed developments. Open houses are one way to improve communication and relationships between industry, the public, and government.

Field staff also participate in synergy groups and strongly endorse this effective, cooperative approach. Synergy groups are usually made up of public, industry, and government representatives who work collaboratively to improve communications and identify and address issues.

Transition

When a noncompliance is identified, the EUB uses a process that has an established policy for EUB enforcement actions. Effective January 1, 2006, *Directive 019: EUB Compliance Assurance—Enforcement* replaced *Informational Letter (IL) 99-4: EUB Enforcement Process, Generic Enforcement Ladder, and Field Surveillance Ladder*. In addition, it superseded the enforcement ladders of all other EUB directives and guides. However, as all of the enforcement for this report occurred prior to the effective date of *Directive 019, IL 99-4* was used as the basis for enforcement for most audit/inspection categories listed in this report. For those audit/inspection categories where the enforcement is based on a different document, that document is specified.

1 Introduction

This year the Alberta Energy and Utilities Board (EUB/Board) is inaugurating the *EUB Provincial Surveillance and Compliance Summary (ST99-2006)*, which combines and replaces the previous reports *ST57: Field Surveillance Provincial Summary* and *ST99: Proactive Compliance Report*. The new report continues to detail industry's compliance with EUB requirements and the enforcement actions taken in cases of noncompliance. The sections relating to field surveillance and inspections also continue to describe the wide range of activities carried out by EUB field staff.

EUB requirements ensure orderly and responsible energy development, while protecting public safety, minimizing environmental impacts, improving conservation, and ensuring equity.

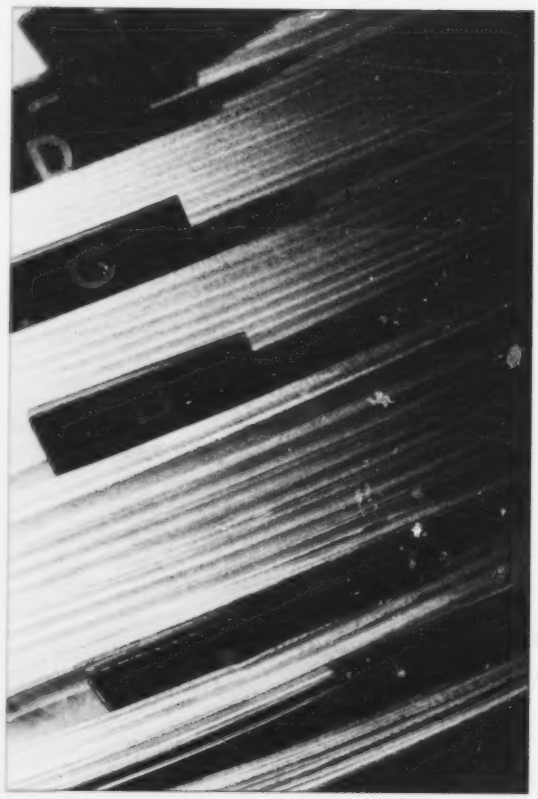
Compliance with these requirements is confirmed by the EUB through surveillance activities, such as inspections and audits. Proactive compliance means that the duty holder (e.g., licensee, operator, company, applicant, approval holder, or permit holder) is in compliance with EUB requirements through its own initiative.

As outlined in *IL 99-4*, enforcement actions are determined by the severity of the noncompliance event and are escalated for subsequent noncompliance or failure to comply with the EUB's corrective order. The EUB allows for a grace period after the company has been instructed to take corrective action. The EUB will take appropriate action during this grace period but will not escalate enforcement consequences.

A Minor unsatisfactory event/inspection/audit is defined as a contravention of regulation(s)/requirement(s) that does not result in a direct threat to the public or the environment and does not adversely affect energy development operations. A Major unsatisfactory event/inspection/audit is defined as a contravention of regulation(s)/requirements(s) that a licensee has failed to address and has the potential to cause an adverse impact on the public, the environment, equity, or resource conservation. A Serious unsatisfactory event/inspection/audit is defined as a major noncompliance combined with demonstrated disregard for the regulation(s)/requirement(s).

Minor noncompliance items are site/operation/activity specific, and enforcement escalation only occurs when the licensee fails to comply. Major and Serious noncompliance items can escalate by failure to comply or due to a subsequent noncompliance in the same audit/inspection category.

2 Operations Division



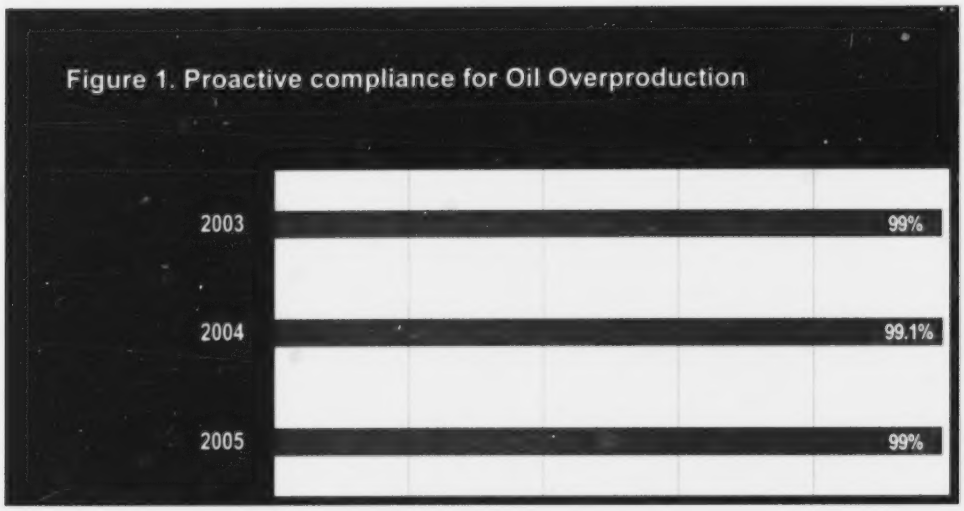
2.1 Geology and Reserves Group and Resources Applications Group

2.1.1 Reserves and Allowables Section and Enforcement and Surveillance Section

Allowables, or maximum rate limitations (MRLs), are rate controls applied primarily to oil entities in accordance with a Board order. Allowables are assigned to new pools where conservation is or could potentially be an issue to help ensure that enhanced oil recovery feasibility and gas conservation are addressed before pools are significantly depleted. Allowables help to minimize gas cap depletion until decisions are made on concurrent production and also serve to maintain intra-pool equity.

In response to Premier Ralph Klein's request for Alberta to increase the supply of oil on a temporary basis to help the United States during the crisis caused by Hurricane Katrina, the EUB temporarily suspended MRLs from September 1 to December 31, 2005. This resulted in an additional 2384 cubic metres (15 000 barrels) of oil per day being produced by Alberta oil companies in September 2005.

The enforcement policy upon which retirement of oil overproduction is based is *Interim Directive (ID) 99-2: Revised Policy on Administration of Oil MRL's and Overproduction* as amended by *ID 99-2 – Amendment: Revisions to Enforcement Ladder for Retirement of Overproduction*. Enforcement of retirement of oil overproduction is the responsibility of the Enforcement and Surveillance Section in the Resources Applications Group and the Reserves and Allowables Section in the Geology and Reserves Group.



Detailed Compliance Data for 2003 – 2005

Table 1. Oil Overproduction

	2003	2004	2005*
Audits of production entities capable of exceeding MRL	3 372	5 772	3 824
Level 2	45	51	44
Level 3	13	12	7
Level 4	1	0	0
Orders Issued	1	0	0
Proactive compliance rate	**99%**	**99.1%**	**99%**

*2005 data are for a partial year due to the suspension of MRLs.

Table 2. Oil Overproduction Appeal Statistics

	2003	2004	2005
Enforcement actions	59	63	51
Appeals received	5	4	1
Appeal rate	**8%**	**6%**	**2%**
Appeals granted	4	2	1
Appeal denial rate	**20%**	**50%**	**0%**

Table 3. Oil Overproduction Request for Waiver

	2003	2004	2005
Enforcement actions	59	63	51
Request received	8	13	5
Request rate	**14%**	**21%**	**10%**
Request granted	1	3	0
Request denial rate	**88%**	**77%**	**100%**

- Level 2 enforcement occurs when a production entity has a cumulative overproduction status exceeding 10 per cent of its adjusted (penalized) monthly MRL and the entity fails to retire all overproduction volumes, including penalties, by the end of the third following month.

- Escalation to Level 3 occurs when an operator receives two Level 2 notices in a 12-month period or fails to comply with Level 2 enforcement action (e.g., resumption of production prior to the retirement of all cumulative oil overproduction volumes).

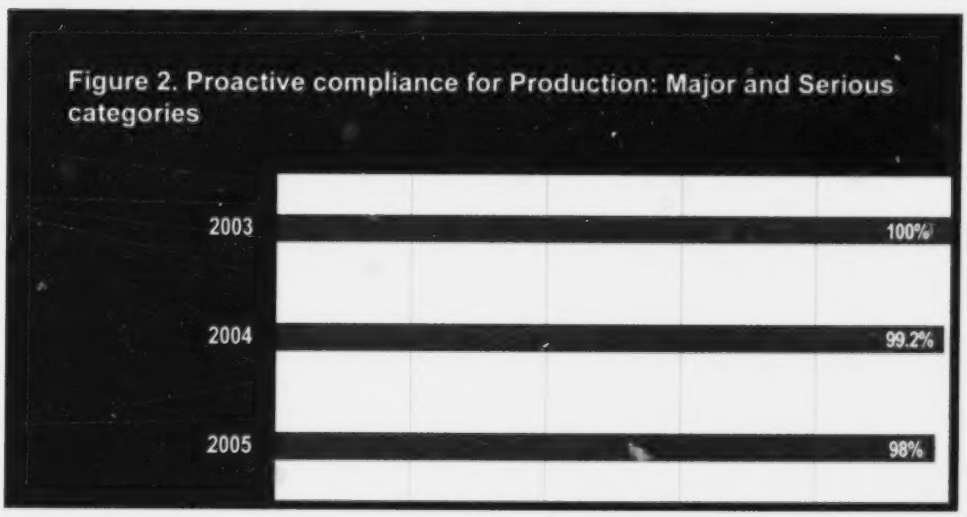
- If an operator's status is at Level 3 and subsequent noncompliance occurs (either a subsequent Level 2 occurrence or failure to comply), the EUB may repeat the Level 3 enforcement action.

- Escalation to Level 4 occurs when an operator already at Level 3 has a subsequent Level 2 occurrence and fails to respond immediately to a written notice from the EUB. Escalation to Level 4 also occurs when an operator fails to respond to a Level 2 or Level 3 notice. Since the introduction of the Enforcement Ladder for Retirement of Overproduction on February 12, 1999, only one operator has been escalated to Level 4.

2.2 Operations Group

2.2.1 Production Operation Section

The Production Operations Section is responsible for verifying industry's compliance with EUB production measurement and reporting requirements. Production audits are conducted according to the guidelines in *Directive 046: Production Audit Handbook*. Audit units are selected using a risk-based audit protocol or by request from stakeholders.



Detailed Compliance Data for 2003 - 2005

Table 4. Production

	2003	2004	2005
Number of audits	**105**	**119**	**85**
Minor			
Level 1 - Initial Minor	105	87	79
Level 2 - Failure to comply	0	3	0
Level 3 - Failure to comply	0	0	0
Level 4 - Failure to comply	0	0	0
Orders issued	0	0	0
Major			
Level 2 - Initial Major	0	1	2
Subsequent Major during grace period	0	0	0
Level 3 - Failure to comply	0	0	0
Subsequent Major	0	0	0
Subsequent Major during grace period	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Major	0	0	0
Orders issued	0	0	0
Serious			
Level 3 - Initial Serious	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Serious	0	0	0
Orders issued	0	0	0
Proactive compliance rate for Major and Serious	**100%**	**99.2%**	**98%**

Table 5. Production Appeal Statistics

	2003	2004	2005
Enforcement actions	105	88	81
Appeals received	0	0	0
Appeal rate	**0%**	**0%**	**0%**
Appeals granted	N/A	N/A	N/A
Appeal denial rate	**N/A**	**N/A**	**N/A**

- Of 85 facilities audited in 2005, 79 had at least 1 Minor noncompliance item and 2 had both Minor and Major noncompliance items.

- The Production Operations Section is taking steps to reduce noncompliance events by directing licensees to examine all their wells and facilities where the same conditions identified in an audit may exist to ensure compliance. As well, *Directive 017: Measurement Requirements for Upstream Oil and Gas Operations* will be expanded in the next year to provide licensees with clear requirements relating to production measurement and reporting.

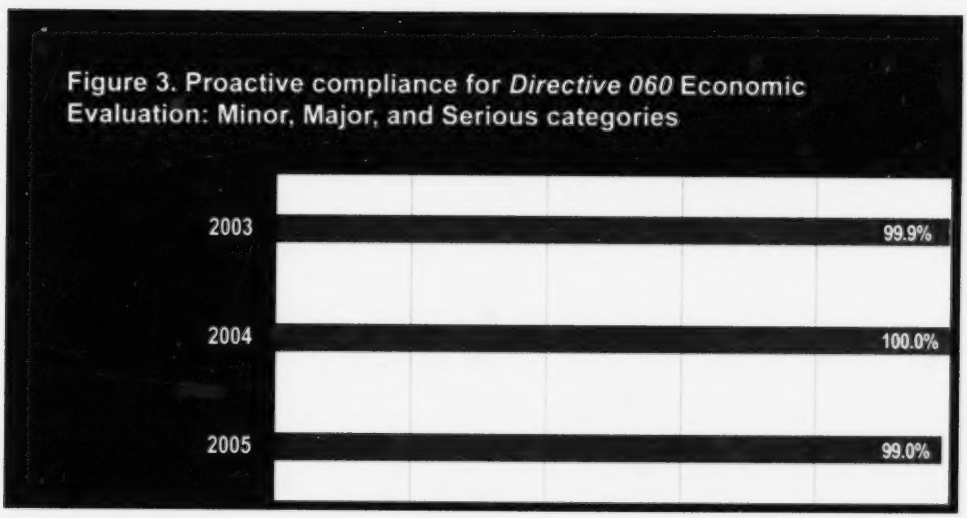
- In 2005, the most common production noncompliance events involved gas volume calculations, fuel gas reporting, gas-oil ratio determination, application of engineering estimates/corrections, receipt measurement, gas-oil ratio application, tank gauging and procedures, and production hours.

2.2.1.1 Directive 060 Economic Evaluation Audits

The EUB has set out flaring and venting requirements for the upstream petroleum industry in *Directive 060: Upstream Petroleum Industry Flaring*. The Production Operations Section is responsible for administering and enforcing the economic evaluations requirements of *Directive 060*. The essence of the requirements is twofold. First, operators are required to evaluate the economic viability of solution gas conservation at new oil and bitumen sites, and second, if conservation is economical, the solution gas must be conserved within predefined time frames. Compliance with the requirements is achieved through a combination of education, proactive surveillance, targeted auditing, and enforcement action when appropriate.

Since the initial publication of *Directive 060* in 1999, year-over-year reductions in solution gas flaring and venting have been realized. In 2004, 96.0 per cent of the solution gas produced in the province was conserved, which is the highest level of conservation achieved since the introduction of *Directive 060*.

Figure 3. Proactive compliance for *Directive 060* Economic Evaluation: Minor, Major, and Serious categories



Detailed Compliance Data for 2003 - 2005

Table 6. *Directive 060* Economic Evaluation

	2003	2004	2005
Number of audits	**820**	**164**	**171**
Minor			
Level 1 - Initial Minor	1	0	0
Level 2 - Failure to comply	1	0	0
Level 3 - Failure to comply	1	0	0
Level 4 - Failure to comply	1	0	
Orders issued			
Major			
Level 2 - Initial Major	0	0	2
Subsequent Major during grace period	0	0	0
Level 3 - Failure to comply	0	0	0
Subsequent Major	0	0	0
Subsequent Major during grace period	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Major	0	0	0
Orders issued	0	0	0
Serious			
Level 3 - Initial Serious	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Serious	0	0	0
Orders issued	0	0	0
Proactive compliance rate for Minor, Major, and Serious	**99.9%**	**100%**	**99%**

Table 7. *Directive 060* Economic Evaluation Appeal Statistics

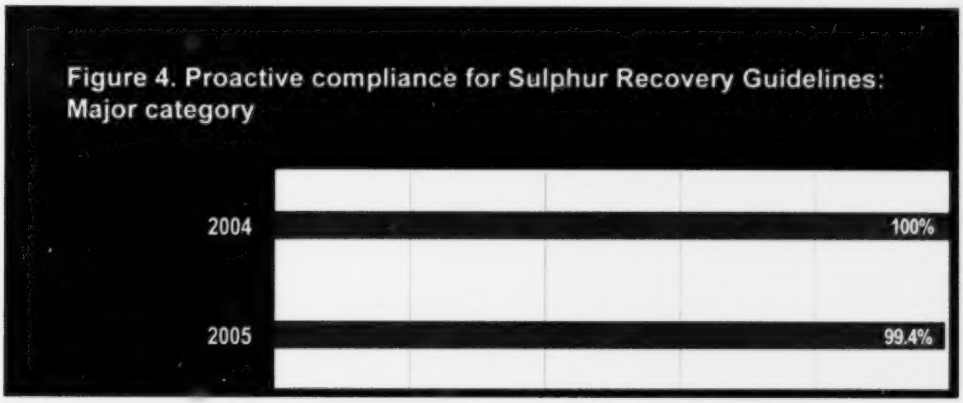
	2003	2004	2005
Enforcement actions	1	0	2
Appeals received	0	0	0
Appeal rate	**0%**	**N/A**	**0%**
Appeals granted	N/A	N/A	N/A
Appeal denial rate	**N/A**	**N/A**	**N/A**

- In 2005, 171 economic evaluation audits were completed on new and existing solution gas flares and vents. There were two Major Level 2 noncompliances identified, which resulted in enforcement action, including the suspension of production operations at the noncompliant batteries. The operators involved responded immediately and remedied the noncompliances in a timely fashion.

- An updated version of *Directive 060* is scheduled to be published in 2006. It contains several recommendations from the Clean Air Strategic Alliance (CASA) designed to promote further reductions of solution gas flaring and venting in the province. The EUB expects that industry's ongoing commitment to the principles of conservation and the new requirements of *Directive 060* will result in further reductions of solution gas flaring and venting.

2.2.1.2 Sulphur Recovery Guidelines

The Production Operations Section is also responsible for monitoring and enforcing the calendar quarter-year sulphur recovery efficiency guidelines, as required by *ID 2001-3: Sulphur Recovery Guidelines for the Province of Alberta.*



Detailed Compliance Data for 2004 - 2005

Table 8. Sulphur Recovery Guidelines

	2004	2005
Number of reviews	**318**	**332**
Major		
Notice	6	10
Level 2 - Initial Major	0	2
Level 3 - Failure to comply	0	0
Level 4 - Failure to comply	0	0
Orders issued	0	0
Proactive compliance rate for Major	**100%**	**99.4%**

Table 9. Sulphur Recovery Guidelines Appeal Statistics

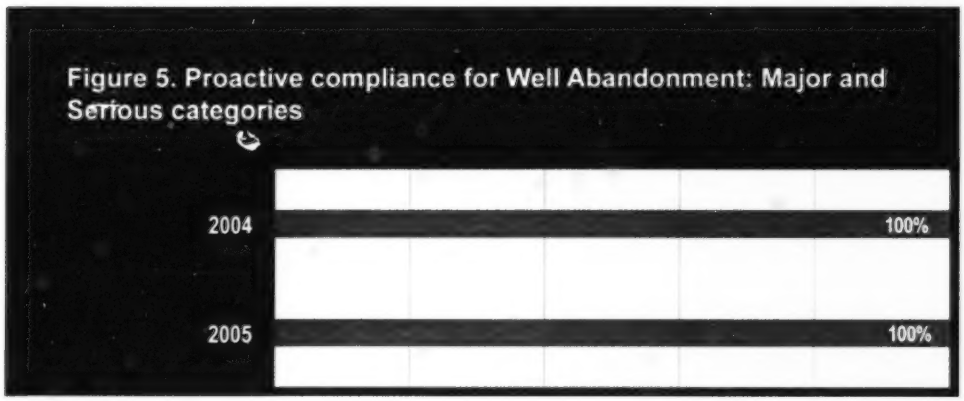
	2004	2005
Enforcement actions	6	10
Appeals received	0	0
Appeal rate	**0%**	**0%**
Appeals granted	N/A	N/A
Appeal denial rate	**N/A**	**N/A**

- In 2005, sulphur recovery efficiency was monitored at 46 sulphur recovery and 37 acid gas injection facilities to ensure that sulphur recovery was met on a calendar quarter-year basis. Acid gas injection is treated as sulphur recovered.

- In 2005, 332 reviews found 12 noncompliant events related to the approved calendar quarter-year sulphur recovery efficiency. Such an event is initially considered to be a Level 1 – Notice. These 12 events resulted in 2 events escalated to Major Level 2. There were no other noncompliance events related to sulphur recovery efficiency.

2.2.2 Well Operations Section

The Well Operations Section is responsible for ensuring that wells in Alberta are drilled, completed, operated, and abandoned in accordance with EUB rules and regulations.



Detailed Compliance Data for 2004 - 2005

Table 10. Well Abandonment

	2004	2005
Number of audits	**40**	**40**
Minor		
Level 1 - Initial Minor	3	0
Level 2 - Failure to comply	0	0
Level 3 - Failure to comply	0	0
Level 4 - Failure to comply	0	0
Orders issued	0	0
Major		
Level 2 - Initial Major	0	0
Subsequent Major during grace period	0	0
Level 3 - Failure to comply	0	0
Subsequent Major	0	0
Subsequent Major during grace period	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Major	0	0
Orders issued	0	0
Serious		
Level 3 - Initial Serious	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Serious	0	0
Orders issued	0	0
Proactive compliance rate for Major and Serious	**100%**	**100%**

Table 11. Well Abandonment Appeal Statistics

	2004	2005
Enforcement actions	3	0
Appeals received	0	0
Appeal rate	**0%**	**N/A**
Appeals granted	N/A	N/A
Appeal denial rate	**N/A**	**N/A**

- The well abandonment audits conducted in 2005 were of 40 randomly selected abandonments identified as nonroutine by the licensees. All audits proved to be in compliance with *Directive 020: Well Abandonment Guide.*

Table 12. Packer Testing

	2004	2005
Number of audits	**99**	**100**
Minor		
Level 1 - Initial Minor	0	8
Level 2 - Failure to comply	0	0
Level 3 - Failure to comply	0	0
Level 4 - Failure to comply	0	0
Orders issued	0	0
Major		
Level 2 - Initial Major	0	0
Subsequent Major during grace period	0	0
Level 3 - Failure to comply	0	0
Subsequent Major	0	0
Subsequent Major during grace period	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Major	0	0
Orders issued	0	0
Serious		
Level 3 - Initial Serious	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Serious	0	0
Orders issued	0	0
Proactive compliance rate for Major and Serious	**100%**	**100%**

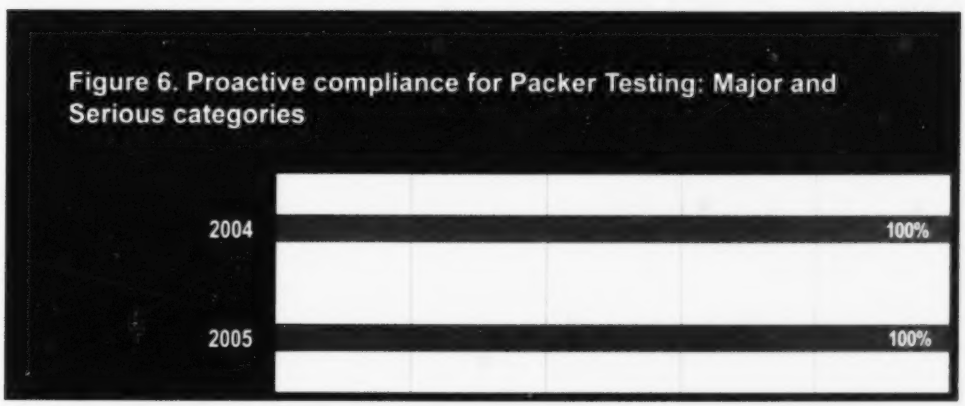


Table 13. Packer Testing Appeal Statistics

	2004	2005
Enforcement actions	0	8
Appeals received	0	0
Appeal rate	**N/A**	**0%**
Appeals granted	N/A	N/A
Appeal denial rate	**N/A**	**N/A**

- In 2005, there were 100 randomly selected packer isolation testing audits. All proved to be in compliance with *ID 2003-01: 1) Isolation Packer Testing, Reporting, and Repair Requirements; 2) Surface Casing Vent Flow/Gas Migration Testing, Reporting, and Repair Requirements; 3) Casing Failure Reporting and Repair Requirements.*

Table 14. Suspended Well Audits

	2005
Number of audits	**54**
Minor	
Level 1 - Initial Minor	3
Level 2 - Failure to comply	0
Level 3 - Failure to comply	0
Level 4 - Failure to comply	0
Orders issued	0
Major	
Level 2 - Initial Major	0
Subsequent Major during grace period	0
Level 3 - Failure to comply	0
Subsequent Major	0
Subsequent Major during grace period	0
Level 4 - Failure to comply with Level 3	0
Subsequent Major	0
Orders issued	0
Serious	
Level 3 - Initial Serious	0
Level 4 - Failure to comply with Level 3	0
Subsequent Serious	0
Orders issued	0
Proactive compliance rate for Major and Serious	**100%**

Table 15. Suspended Well Audits Appeal Statistics

	2005
Enforcement actions	3
Appeals received	0
Appeal rate	**0%**
Appeals granted	N/A
Appeal denial rate	**N/A**

- The only suspension audit completed in 2005 was in conjunction with the incident investigation of the Acclaim Energy Inc. blowout of December 12, 2004. Audits were conducted on all 54 suspended wells in the Acheson and Acheson East fields.

- Of the 54 wells audited, 3 had Minor noncompliant items, such as insufficient signage. The remaining 51 wells were in accordance with *Directive 013: Suspension Requirements for Wells.*

Table 16. Surface Casing Vent Flow/Gas Migration

	2004	2005
Number of audits	**34**	**40**
Minor		
Level 1 - Initial Minor	4	0
Level 2 - Failure to comply	0	0
Level 3 - Failure to comply	0	0
Level 4 - Failure to comply	0	0
Orders issued	0	0
Major		
Level 2 - Initial Major	0	0
Subsequent Major during grace period	0	0
Level 3 - Failure to comply	0	0
Subsequent Major	0	0
Subsequent Major during grace period	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Major	0	0
Orders issued	0	0
Serious		
Level 3 - Initial Serious	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Serious	0	0
Orders issued	0	0
Proactive compliance rate for Major and Serious	**100%**	**100%**

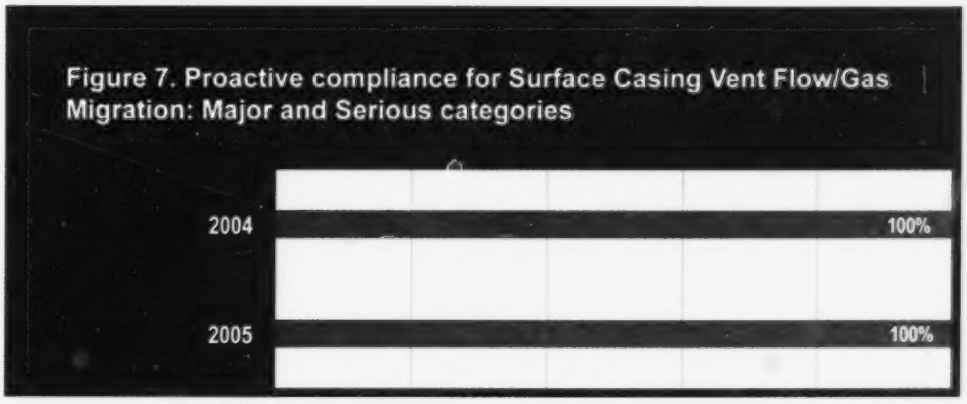


Table 17. Surface Casing Vent Flow/Gas Migration Appeal Statistics

	2004	2005
Enforcement actions	4	0
Appeals received	0	0
Appeal rate	**0%**	**N/A**
Appeals granted	N/A	N/A
Appeal denial rate	**N/A**	**N/A**

- In 2005, 40 surface casing vent flow/gas migration audits were conducted on randomly selected repair programs identified as nonroutine by the licensees. All proved to be in compliance with *ID 2003-01*.

Table 18. Well Casing Failure Audits

	2005
Number of audits	**20**
Minor	
Level 1 - Initial Minor	0
Level 2 - Failure to comply	0
Level 3 - Failure to comply	0
Level 4 - Failure to comply	0
Orders issued	0
Major	
Level 2 - Initial Major	0
Subsequent Major during grace period	0
Level 3 - Failure to comply	0
Subsequent Major	0
Subsequent Major during grace period	0
Level 4 - Failure to comply with Level 3	0
Subsequent Major	0
Orders issued	0
Serious	
Level 3 - Initial Serious	0
Level 4 - Failure to comply with Level 3	0
Subsequent Serious	0
Orders issued	0
Proactive compliance rate for Major and Serious	**100%**

Table 19. Well Casing Failure Audits Appeal Statistics

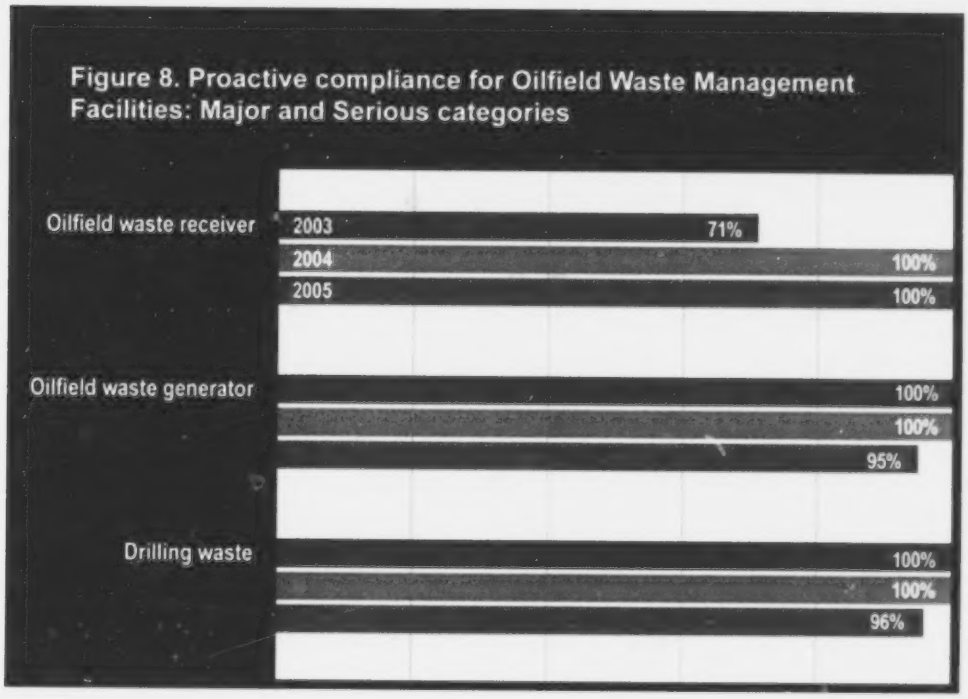
	2005
Enforcement actions	0
Appeals received	0
Appeal rate	**N/A**
Appeals granted	N/A
Appeal denial rate	**N/A**

- In 2005, 20 casing failure audits were conducted on 20 randomly selected casing repairs identified as nonroutine by the licensees. All proved to be in compliance with *ID 2003-01*. In 2006, the Well Operations Section plans to conduct audits not solely focused on nonroutine casing failures.

- The Well Operations Section has noted that the 2005 audits focused on nonroutine items did not find any noncompliance issues due to the fact that EUB staff are consulted prior to work being conducted. In 2006, the audits will target operations that EUB staff are not required to be consulted on.

2.3 Environment Group

2.3.1 Waste and Storage Section



2.3.1.1 Oilfield Waste Receiver

Oilfield waste receiver audits are conducted to verify that oilfield waste management facilities are designed, constructed, and operated in compliance with their EUB waste management facility approvals, *Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry*, and associated EUB requirements as appropriate. This program evaluates the records, documentation, and operational practices as observed on site.

Detailed Compliance Data for 2003 - 2005

Table 20. Oilfield Waste Receiver

	2003	2004	2005
Number of audits	**7**	**2**	**1**
Minor			
Level 1 - Initial Minor	5	2	1
Level 2 - Failure to comply	2	0	0
Level 3 - Failure to comply	0	0	0
Level 4 - Failure to comply	0	0	0
Orders issued	0	0	0
Major			
Level 2 - Initial Major	2	0	0
Subsequent Major during grace period	0	0	0
Level 3 - Failure to comply	0	0	0
Subsequent Major	0	0	0
Subsequent Major during grace period	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Major	0	0	0
Orders issued	0	0	0
Serious			
Level 3 - Initial Serious	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Serious	0	0	0
Orders issued	0	0	0
Proactive compliance rate for Major and Serious	**71%**	**100%**	**100%**

Table 21. Oilfield Waste Receiver Appeal Statistics

	2003	2004	2005
Enforcement actions	7	2	1
Appeals received	0	0	0
Appeal rate	**0%**	**0%**	**0%**
Appeals granted	N/A	N/A	N/A
Appeal denial rate	**N/A**	**N/A**	**N/A**

- The audits verify that oilfield waste receivers are accepting and processing waste streams appropriate for the facility, reporting waste receipts and dispositions accurately and appropriately, and operating and maintaining the facility in an environmentally responsible manner and in accordance with applicable EUB regulatory requirements.

- The most common Minor noncompliance events identified during the 2005 audit program were errors in reporting waste receipt and disposition, inadequate secondary containment integrity, and operational changes made without approval.

- Compliance issues are communicated back to the oilfield waste management facility approval holder, and compliance is accomplished through education regarding requirements and collaborative problem solving with the oilfield waste management facility approval holders.

- The Environment Group will continue to provide support to oilfield waste receivers regarding the requirements of *Directive 058* and the associated regulatory requirements. Ongoing audit programs will continue to extend opportunities for

waste receivers to improve operations and to meet or exceed the EUB's requirements. *Directive 019: Compliance Assurance—Enforcement* will be implemented to correct noncompliance situations and bring the waste receiver back into compliance.

2.3.1.2 Oilfield Waste Generator

The oilfield waste generator audit/assessment program evaluates upstream oilfield waste management practices to ensure that compliance in accordance with EUB *Directive 058*. The program evaluates oilfield waste tracking and disposition information, as well as on-site oilfield waste management practices at upstream petroleum sites.

The audit/assessment verifies that the oilfield waste types and volumes are accurately tracked and are appropriately characterized and classified prior to management activity. It also verifies that the appropriate disposition locations (including on-site oilfield waste management activities) are in compliance with *Directive 058* requirements.

Detailed Compliance Data for 2003 - 2005

Table 22. Oilfield Waste Generator

	2003	2004	2005
Number of audits	**35**	**35**	**44**
Minor			
Level 1 - Initial Minor	8	23	20
Level 2 - Failure to comply	0	0	0
Level 3 - Failure to comply	0	0	0
Level 4 - Failure to comply	0	0	0
Orders issued	0	0	0
Major			
Level 2 - Initial Major	0	0	2
Subsequent Major during grace period	0	0	0
Level 3 - Failure to comply	0	0	0
Subsequent Major	0	0	0
Subsequent Major during grace period	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Major	0	0	0
Orders issued	0	0	0
Serious			
Level 3 - Initial Serious	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Serious	0	0	0
Orders issued	0	0	0
Proactive compliance rate for Major and Serious	**100%**	**100%**	**95%**

Table 23. Oilfield Waste Generator Appeal Statistics

	2003	2004	2005
Enforcement actions	8	23	22
Appeals received	1	0	0
Appeal rate	**13%**	**0%**	**0%**
Appeals granted	1	N/A	N/A
Appeal denial rate	**0%**	**N/A**	**N/A**

- The most common Minor noncompliance events identified during the 2005 audit/assessment program included inaccurate information reported to the EUB and inappropriate characterization and classification of oilfield wastes prior to the management option being used. Major noncompliance items identified related to lack of characterization of oilfield waste, dilution of waste prior to characterization and disposal, and performance of an activity for which an EUB approval had not been acquired. The noncompliance events were identified and communicated back to the oilfield waste generators. Compliance was achieved for all noncompliance items identified through consultation with the oilfield waste generators.

- The Environment Group will continue to provide support and educate oilfield waste generators with regard to the requirements of *Directive 058* and will continue to conduct audits/assessments of oilfield waste management and treatment activities. Noncompliance events identified in future audits/assessments may result in enforcement actions in accordance with *Directive 019*. Any enforcement action is communicated to the oilfield waste generator in writing, with the timelines identified for corrective actions.

2.3.1.3 Drilling Waste

The drilling waste audit program evaluates industry's compliance with drilling waste disposal and management criteria detailed in the *Oil and Gas Conservation Regulations*, *Directive 050: Drilling Waste Management*, specific one-time approvals, and a number of informational letters and interim directives. The Waste and Storage Section conducts drilling waste post-disposal audits to verify compliance with the requirements found in the above documents. Audit candidates (licensees) are randomly selected to ensure representation of all regions throughout the province, as well as a variety of drilling waste management practices used by industry. Complaints to the EUB from the public, EUB field staff, Alberta Environment staff, or Alberta Sustainable Resource Development staff will also trigger an audit.

Detailed Compliance Data for 2003 - 2005

Table 24. Drilling Waste

	2003	2004	2005
Number of audits	**19**	**7**	**110**
Minor			
Level 1 - Initial Minor	2	3	8
Level 2 - Failure to comply	1	0	0
Level 3 - Failure to comply	1	0	0
Level 4 - Failure to comply	1	0	0
Orders issued	1	0	0
Major			
Level 2 - Initial Major	0	0	4
Subsequent Major during grace period	0	0	0
Level 3 - Failure to comply	0	0	0
Subsequent Major	0	0	0
Subsequent Major during grace period	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Major	0	0	0
Orders issued	0	0	0
Serious			
Level 3 - Initial Serious	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Serious	0	0	0
Orders issued	0	0	0
Proactive compliance rate for Major and Serious	**100%**	**100%**	**96%**

Table 25. Drilling Waste Appeal Statistics

	2003	2004	2005
Enforcement actions	2	3	12
Appeals received	0	0	0
Appeal rate	**0%**	**0%**	**0%**
Appeals granted	N/A	N/A	N/A
Appeal denial rate	**N/A**	**N/A**	**N/A**

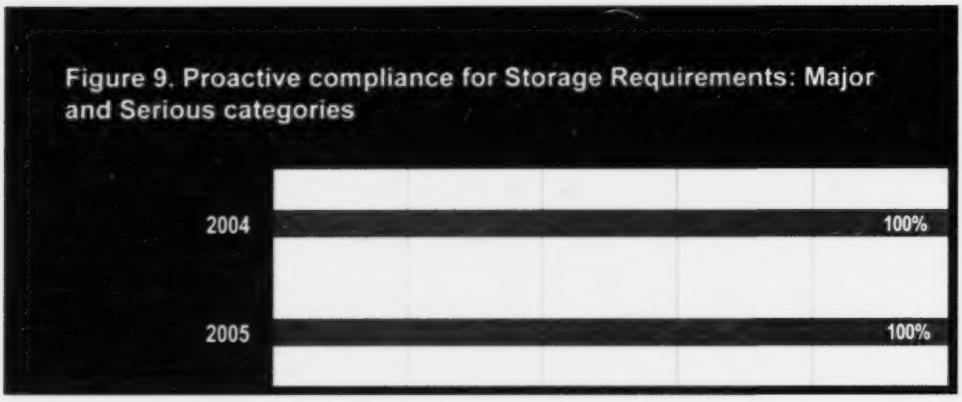
- Throughout 2005, 110 drilling waste audits were completed. Of this number, 8 resulted in Minor Level 1 enforcement and 4 resulted in Major Level 2 enforcement. The most common Minor level enforcement was a result of documentation errors. Major level enforcement resulted due to incomplete or inaccurate characterization of drilling waste or the use of inappropriate disposal technique. In all cases, compliance was achieved after consultation with industry and, where warranted, after post-disposal confirmatory sampling and analysis were conducted to ensure that prescribed loading limits were not exceeded.

- The Environment Group will continue performing drilling waste audits/assessments throughout 2006. Although there will be no change to the protocol used to evaluate the drilling waste audits/assessments, *Directive 019* will now be used as the main tool to educate and, if necessary, to correct behaviours through the use of enforcement.

2.3.1.4 Storage Requirements

Storage requirement audits are conducted to verify that EUB-licensed facilities operating or constructed before January 1, 1996, are in compliance with *Directive 055: Storage Requirements for the Upstream Petroleum Industry.* This program is currently focused on the evaluation of how approval holders, licensees, and operators of upstream petroleum facilities, well sites, and pipelines constructed or operating before January 1, 1996,[1] are meeting the intent of *Directive 055.*

Figure 9. Proactive compliance for Storage Requirements: Major and Serious categories



[1] Refer to *Directive 055* (December 2001 edition), Appendix 2, pages 45-61, for further details on the above requirements, including the October 31, 2001, deadline for aboveground tanks, underground tanks, containers, lined earthen excavations, and bulk pads constructed on upstream petroleum sites before 1996.

Detailed Compliance Data for 2003 - 2005

Table 26. Storage Requirements

	2004	2005
Number of audits	**81**	**81***
Minor		
Level 1 - Initial Minor	0	22
Level 2 - Failure to comply	0	0
Level 3 - Failure to comply	0	0
Level 4 - Failure to comply	0	0
Orders issued	0	0
Major		
Level 2 - Initial Major	0	0
Subsequent Major during grace period	0	0
Level 3 - Failure to comply	0	0
Subsequent Major	0	0
Subsequent Major during grace period	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Major	0	0
Orders issued	0	0
Serious		
Level 3 - Initial Serious	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Serious	0	0
Orders issued	0	0
Proactive compliance rate for Major and Serious	**100%**	**100%**

* Audits were initiated in 2004.

Table 27. Storage Requirements Appeal Statistics

	2004	2005
Enforcement actions	0	22
Appeals received	0	0
Appeal rate	**0%**	**0%**
Appeals granted	N/A	N/A
Appeal denial rate	**N/A**	**N/A**

- In 2005, 81 oilfield storage audits were concluded on a cross-section of facilities throughout Alberta. Many potential noncompliance issues were identified and Minor enforcement was applied to 22 facilities. Corrective action or additional information was required from 28 facilities—for example, when a facility had changed ownership, the new licensee was required to address the noncompliance but did not receive enforcement action.

- The most common Minor noncompliance events identified in the 2005 audit were failure to implement an integrity verification plan prior to 2001, failure to continue to verify storage facilities' integrity in accordance with *Directive 055*, and inadequate upgrades of secondary containment. Although the majority of licensees appear to have taken some steps to comply, some appear to have only responded to the requirements of *Directive 055* after receiving the audit request.

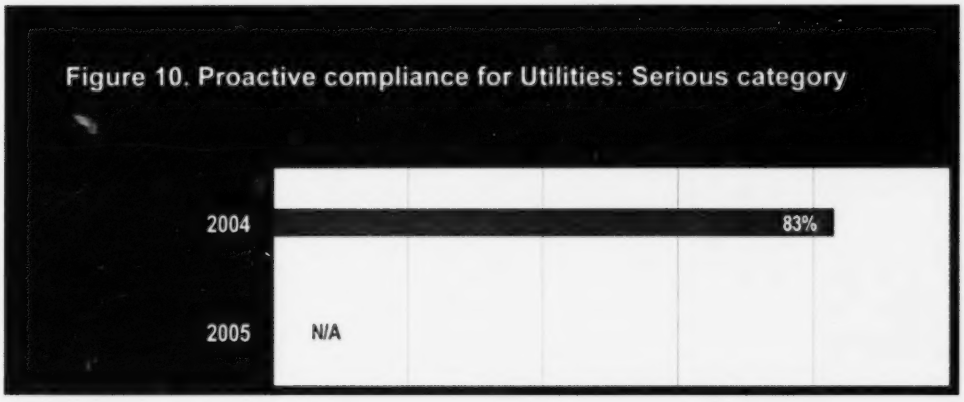
- The Environment Group will continue to provide technical support through an ongoing audit program aimed at heightening awareness of *Directive 055* and educating licensees about EUB requirements. *Directive 019* will be used to improve performance through corrective actions, education, and enforcement.

2.4 Utilities Branch

2.4.1 Facilities Group

The Utilities Branch is responsible for the economic, orderly, and efficient development and operation in the public interest of the generation and transmission of electric energy in Alberta. It accomplishes this through existing legislation, regulations, and requirements, which includes monitoring complaints and applying fair and firm enforcement action in cases of noncompliance.

The Utilities Branch does not audit electrical facilities, nor does it perform regular or scheduled inspections of facilities. Staff make site visits or field trips usually connected to active applications. Generally, noncompliance situations become known through public complaint or from staff field trips or site visits.



Detailed Compliance Data for 2004 – 2005

Table 28. Utilities

	2004	2005
Number of audits	**6**	**0**
Serious		
Level 3 - Initial Serious	1	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Serious	0	0
Orders issued	0	0
Proactive compliance rate for Serious	**83%**	**N/A**

Table 29. Utilities Appeal Statistics

	2004	2005
Enforcement actions	1	0
Appeals received	0	N/A
Appeal rate	**0%**	**N/A**
Appeals granted	N/A	N/A
Appeal denial rate	**N/A**	**N/A**

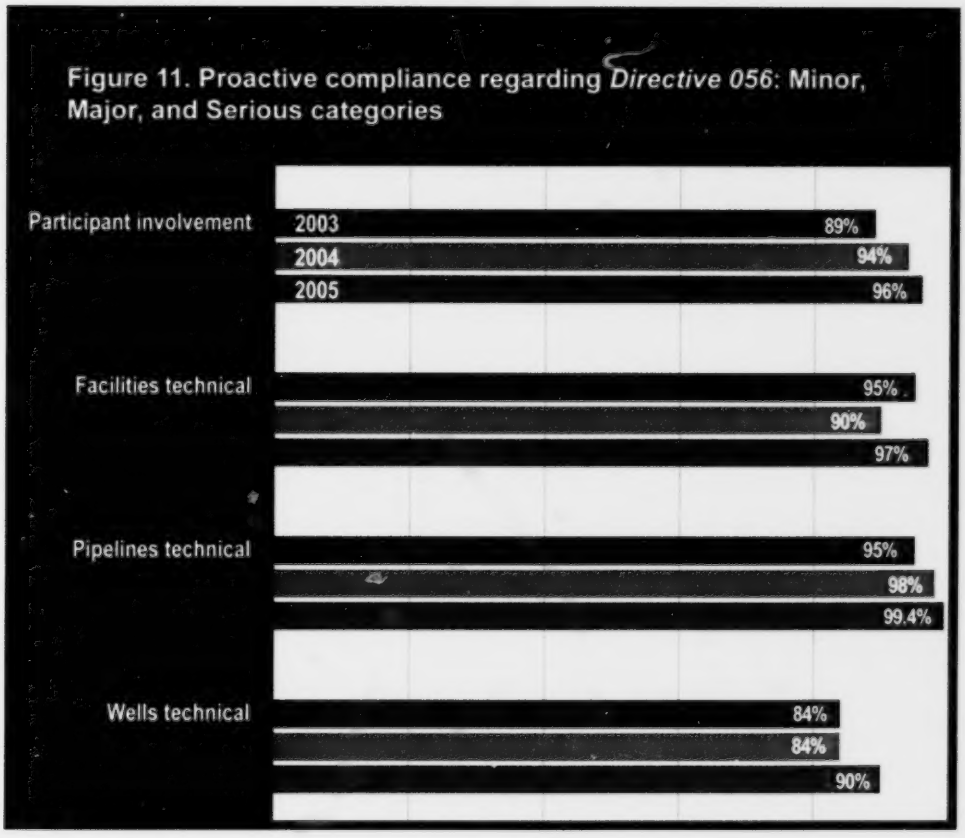
- The Utilities Branch does not deal with a large number of compliance incidents. There were no reported noncompliance incidents in 2005 and only one in 2004.

2.5 Facilities Applications Group

2.5.1 Applications Audit Section

The Applications Audit Section is responsible for auditing facility, well, and pipeline licence applications. One of its objectives is to measure industry's compliance with *Directive 056: Energy Development Applications and Schedules*. The Facilities Applications audit process provides baseline industry compliance levels and identifies areas where companies can continue to improve. The 2005 audit figures indicate increased industry compliance with *Directive 056* requirements. Industry has improved its compliance within the Wells Technical area.

Figure 11. Proactive compliance regarding *Directive 056*: Minor, Major, and Serious categories



Detailed Compliance Data for 2003 – 2005

Table 30. Participant Involvement

	2003	2004	2005
Initial audits	**246***	**486**	**715**
Minor			
Level 1 - Initial Minor	3	0	0
Level 2 - Failure to comply	0	0	0
Level 3 - Failure to comply	0	0	0
Level 4 - Failure to comply	0	0	0
Orders issued	0	0	0
Major			
Level 2 - Initial Major	70	22	22
Subsequent Major during grace period	0	1	0
Level 3 - Failure to comply	0	0	0
Subsequent Major	0	0	0
Subsequent Major during grace period	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Major	0	0	0
Orders issued	0	0	0
Serious			
Level 3 - Initial Serious	4	6	5
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Serious	0	0	0
Orders issued	0	0	0
Proactive compliance rate for Minor, Major, and Serious	**69%**	**94%**	**96%**

* The number of audits has been changed to reflect post-approval audits only.

Table 31. Participant Involvement Appeal Statistics

	2003	2004	2005
Enforcement actions	77	29	27
Appeals received	7	3	0
Appeal rate	**9%**	**10%**	**0%**
Appeals granted	2	1	N/A
Appeal denial rate	**71%**	**67%**	**N/A**

Table 32. Facilities Technical

	2003	2004	2005
Initial audits	**149**	**103**	**118**
Minor			
Level 1 - Initial Minor	0	0	0
Level 2 - Failure to comply	0	0	0
Level 3 - Failure to comply	0	0	0
Level 4 - Failure to comply	0	0	0
Orders issued	0	0	0
Major			
Level 2 - Initial Major	4	6	0
Subsequent Major during grace period	0	0	0
Level 3 - Failure to comply	0	0	0
Subsequent Major	0	0	0
Subsequent Major during grace period	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Major	0	0	0
Orders issued	0	0	0
Serious			
Level 3 - Initial Serious	4	4	3
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Serious	0	0	0
Orders issued	0	0	0
Proactive compliance rate for Minor, Major, and Serious	**95%**	**90%**	**97%**

Table 33. Facilities Technical Appeal Statistics

	2003	2004	2005
Enforcement actions	8	10	3
Appeals received	3	0	1
Appeal rate	**38%**	**0%**	**33%**
Appeals granted	3	N/A	0
Appeal denial rate	**0%**	**N/A**	**100%**

Table 34. Pipelines/Pipeline Installations Technical

	2003	2004	2005
Initial audits	**124**	**139**	**173**
Minor			
Level 1 - Initial Minor	0	0	0
Level 2 - Failure to comply	0	0	0
Level 3 - Failure to comply	0	0	0
Level 4 - Failure to comply	0	0	0
Orders issued	0	0	0
Major			
Level 2 - Initial Major	6	1	1
Subsequent Major during grace period	0	0	0
Level 3 - Failure to comply	0	0	0
Subsequent Major	0	1	0
Subsequent Major during grace period	0	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Major	0	0	0
Orders issued	0	0	0
Serious			
Level 3 - Initial Serious	0	1	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Serious	0	0	0
Orders issued	0	0	0
Proactive compliance rate for Minor, Major, and Serious	**95%**	**98%**	**99.4%**

Table 35. Pipelines/Pipeline Installations Technical Appeal Statistics

	2003	2004	2005
Enforcement actions	6	3	1
Appeals received	1	0	1
Appeal rate	**17%**	**0%**	**100%**
Appeals granted	0	N/A	1
Appeal denial rate	**100%**	**N/A**	**0%**

Table 36. Wells Technical

	2003	2004	2005
Initial audits	**497**	**364**	**549**
Minor			
Level 1 - Initial Minor	5	31	49
Level 2 - Failure to comply	0	0	0
Level 3 - Failure to comply	0	0	0
Level 4 - Failure to comply	0	0	0
Orders issued	0	0	0
Major			
Level 2 - Initial Major	68	24	5
Subsequent Major during grace period	0	2	0
Level 3 - Failure to comply	0	0	0
Subsequent Major	2	1	0
Subsequent Major during grace period	0	1	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Major	0	0	0
Orders issued	0	0	0
Serious			
Level 3 - Initial Serious	3	0	0
Level 4 - Failure to comply with Level 3	0	0	0
Subsequent Serious	0	0	0
Orders issued	0	0	0
Proactive compliance rate for Minor, Major, and Serious	**84%**	**84%**	**90%**

Table 37. Wells Technical Appeal Statistics

	2003	2004	2005
Enforcement actions	78	59	54
Appeals received	10	3	1
Appeal rate	**13%**	**5%**	**2%**
Appeals granted	4	1	1
Appeal denial rate	**60%**	**67%**	**0%**

- Compliance trends remained similar to those in the 2004 calendar year. Most noncompliances fell within the wells technical and participant involvement audit/inspection categories. The majority of participant involvement noncompliance events were companies failing to meet public disclosure and consultation requirements. The majority of wells technical noncompliance events were companies failing to obtain mineral rights (Freehold and Crown), overhole drilling, and proceeding without the Crown's authorization for wellbore re-entries.

- The number of audits conducted increased 42 per cent, from 1092 in 2004 to 1555 in 2005, with the total number of audit assessments growing 67 per cent, from 1529 in 2004 to 2561 in 2005. The introduction of the pipeline and facilities self-disclosure processes accounted for a significant increase in audit assessments completed in 2005. These self-disclosure processes were not fully functional in the 2004 reporting period. The number of companies that came forward to address facility and pipeline licensing issues demonstrates the success of these processes and industry's willingness to correct past licensing issues and work towards continued compliance.

- A total of 1555 audits were conducted on *Directive 056* applications. This number includes Random, Judgemental, and Immediate audits. This number also includes
  - 282 preapproval audits as part of reviews under Section 26 of the *Energy Resources Conservation Act*,
  - 81 audits as part of reviews and variances under Section 39 or 40 of the *Energy Resources Conservation Act*,
  - 121 E Category reviews deemed nonroutine (E600 Gas Processing Plants, E610 Critical Wells, and E620, E621, and E622 Proximity Critical Wells), and
  - 142 self-disclosure reviews.
- Application audits produced 85 enforcement actions in the following audit/inspection categories:
  - Participant Involvement – 27 (22 Major Level 2 and 5 Initial Serious)
  - Facilities Technical – 3 Initial Serious (Level 3)
  - Pipeline Technical – 1 Major (Level 2)
  - Well Technical – 54 (49 Minor and 5 Major)
- Three appeals were received by Facilities Applications Audit staff:
  - one appeal was granted by Facilities Applications Audit staff
  - one appeal was denied by Facilities Applications Audit staff
  - one appeal was granted by the Enforcement Advisor
- In addition to the above, Facilities Applications Audit captured and processed 663 pipeline and 343 facilities applications through the pipeline and facilities self-disclosure processes. In total, the section assessed 2561 audit applications.

2.6 Corporate Compliance Group

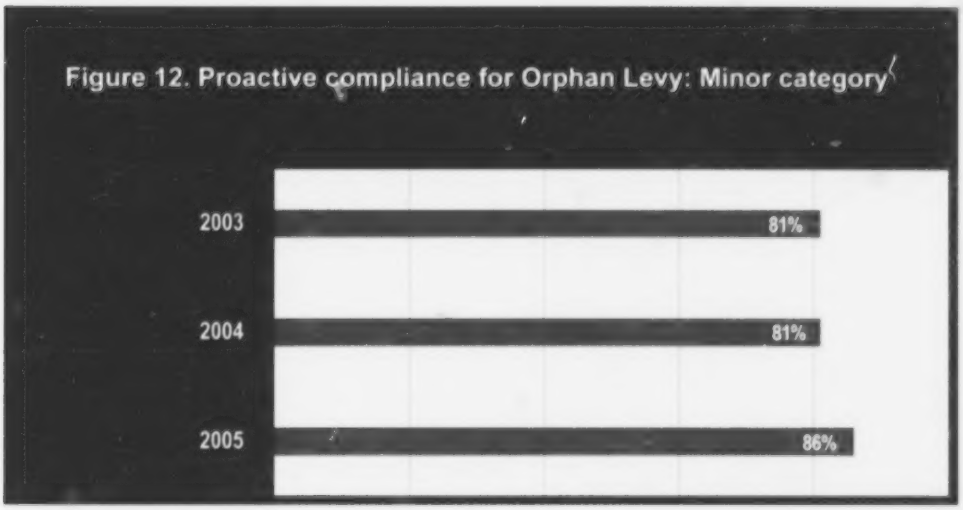
2.6.1 Liability Management Section

The role of the EUB's Liability Management Section is to develop, implement, and administer appropriate, effective, and efficient liability management programs. These are designed to minimize and, if possible, eliminate the risk of the abandonment and reclamation liabilities of industry sectors regulated by the EUB falling to the people of Alberta.

For the upstream oil and gas industry, this responsibility is accomplished by evaluating the financial viability of licensees monthly and on proposed licence transfers. The Liability Management Section also administers the Orphan Levy and the Liability Management Rating (LMR) (which represents an amalgamation of the monthly Licensee Liability Rating [LLR] Program and the Large Facility Liability Management Program [LFP]).

2.6.1.1 Orphan Levy

The Orphan Levy, announced in *Bulletin 2005-6: 2005 Orphan Levy*, is based on the revenue requirements identified in the Alberta Orphan Oil and Gas Abandonment and Reclamation Association (Orphan Well Association) budget. The EUB allocates the Orphan Levy cost among the licensees subject to the Licensee Liability Rating (LLR), which for the 2005 fiscal year was based on the February 5 LLR monthly assessment.



Detailed Compliance Data for 2003 – 2005

Table 38. Orphan Levy

	2003	2004	2005
Initial invoices	**927**	**922**	**869**
Minor			
Level 1 - Initial Minor (penalty)	172	176	126
Level 2 - Failure to comply	94	56	86
Level 3 - Failure to comply	70	50	42
Level 4 - Failure to comply	57	35	29
Orders issued	2	0	4
Proactive compliance rate for Minor	**81%**	**81%**	**86%**

Table 39. Orphan Levy Appeal Statistics

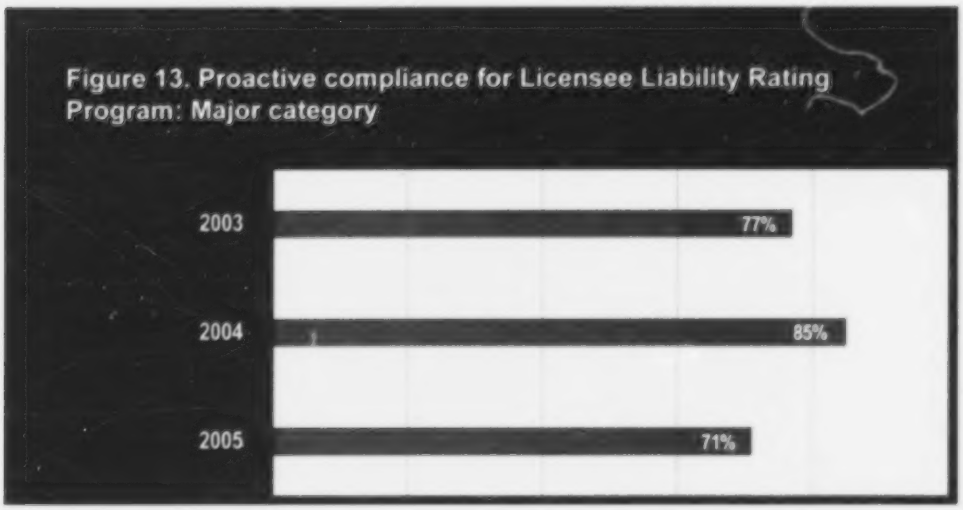
	2003	2004	2005
Enforcement actions	172	176	126
Appeals received	7	5	5
Appeal rate	**4%**	**3%**	**4%**
Appeals granted	1	1	2
Appeal denial rate	**86%**	**80%**	**60%**

2.6.1.2 Liability Management Rating

The LMR assessment is a comparison of a licensee's deemed assets in both the LLR Program and the LFP to its deemed liabilities in both programs. The LMR evaluates a licensee's ratio of both deemed assets and deemed liabilities each month and on receipt of a licence transfer application. Currently, the LMR security threshold is 1.0; licensees with a deemed-asset-to-deemed-liability ratio below 1.0 are required to provide the EUB with a deposit equal to the difference.

Prior to the implementation of *Directive 024: Large Facility Liability Management Program* on October 01, 2005, monthly and licence transfer assessments were solely based in the requirements of *Directive 006: Licensee Liability Rating (LLR) Program and Licence Transfer Process*. As a result of the implementation of the LMR, the numbers in

the figure and tables below represent an amalgamation of both LLR and LFP enforcement figures.



Detailed Compliance Data for 2003 - 2005

Table 40. LMR

	2003	2004	2005
Initial assessments	**11 640**	**11 628**	**11 593**
Assessment invoices	**324**	**397**	**301**
Major			
Level 2 - Initial Major	76	60	87
Level 3 - Failure to comply	40	32	26
Subsequent Major	0	0	0
Level 4 - Failure to comply with Level 3	53	15	13
Subsequent Major	0	0	0
Orders issued	45	12	11
Proactive compliance rate for Major	**77%**	**85%**	**71%**

Table 41. LMR Parameter Review

	2003	2004	2005
Assessment invoices	169	107	301
Reviews received	24	17	17
Review rate	**14%**	**16%**	**6%**
Reviews granted	18	13	10
Review denial rate	**25%**	**24%**	**41%**

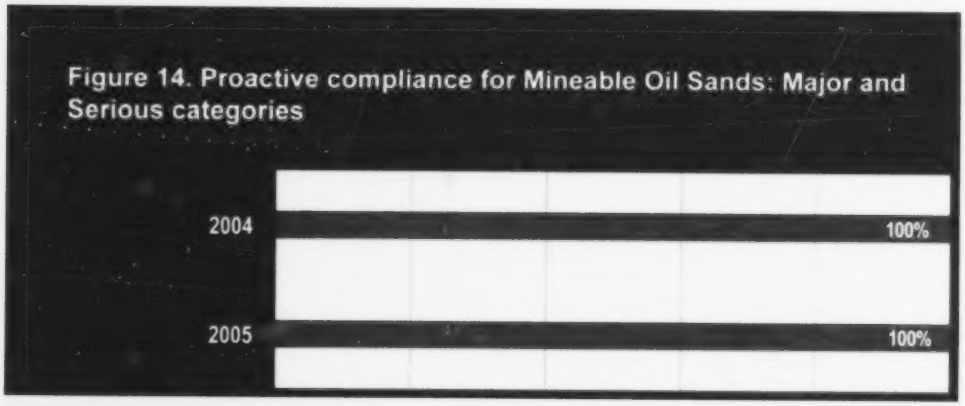
- The LLR Program is based on the use of provincial averages, and their use may not accurately reflect the deemed assets or deemed liabilities of a particular licensee. As a result, the EUB considers requests for review by licensees that do not meet the LLR threshold for a variance of one or more LLR parameters. Virtually all of the requests made by licensees are related to well or facility abandonment and reclamation variations.

2.7 Fort McMurray Oil Sands Office

2.7.1 Oil Sands Section

2.7.1.1 Mineable Oil Sands

The Fort McMurray Oil Sands Office is responsible for oil sands mining activity, including applications, operational and field surveillance, aboriginal relations, geology and reserves, and environmental services.



Detailed Compliance Data for 2004 - 2005

Table 42. Mineable Oil Sands

	2004	2005
Initial inspections	**44**	**44**
Minor		
Level 1 - Initial Minor	1	2
Level 2 - Failure to comply	0	0
Level 3 - Failure to comply	0	0
Level 4 - Failure to comply	0	0
Orders issued	0	0
Major		
Level 2 - Initial Major	0	0
Subsequent Major during grace period	0	0
Level 3 - Failure to comply	0	0
Subsequent Major	0	0
Subsequent Major during grace period	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Major	0	0
Orders issued	0	0
Serious		
Level 3 - Initial Serious	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Serious	0	0
Orders issued	0	0
Proactive compliance rate for Major, and Serious	**100%**	**100%**

Table 43. Mineable Oil Sands Appeal Statistics

	2004	2005
Enforcement actions	1	2
Appeals received	0	0
Appeal rate	**0%**	**0%**
Appeals granted	N/A	N/A
Appeal denial rate	**N/A**	**N/A**

2.7.1.2 Operating Criteria

Uniform resource recovery requirements are applied to all oil sands mine and processing plant sites through the use of operating criteria. Operating criteria and enforcement actions are detailed in *ID 2001-7: Operating Criteria—Resource Recovery Requirements for Oil Sands Mine and Processing Plant Sites.*

Table 44. Operating Criteria

	2004	2005
Initial inspections	**3**	**3**
Major		
Level 2 - Initial Major	1	1
Subsequent Major during grace period	0	0
Level 3 - Failure to comply	0	0
Subsequent Major	0	0
Subsequent Major during grace period	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Major	0	0
Orders issued	0	0
Serious		
Level 3 - Initial Serious	0	0
Level 4 - Failure to comply with Level 3	0	0
Subsequent Serious	0	0
Orders issued	0	0
Proactive compliance rate for Major and Serious	**67%**	**67%**

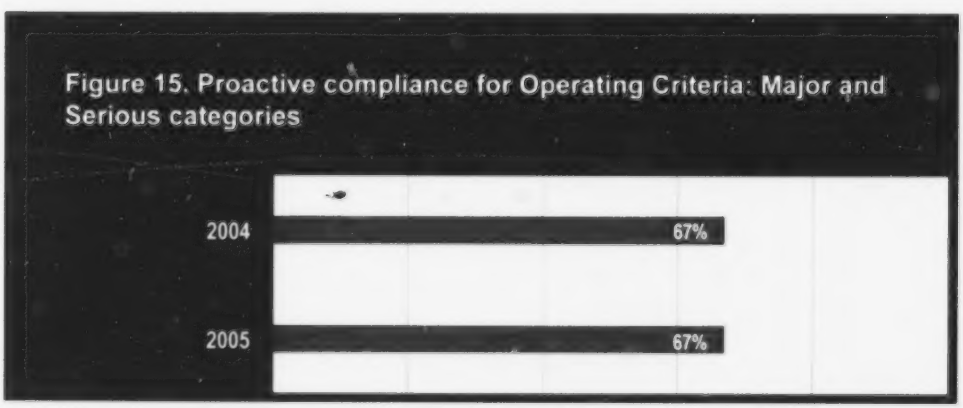
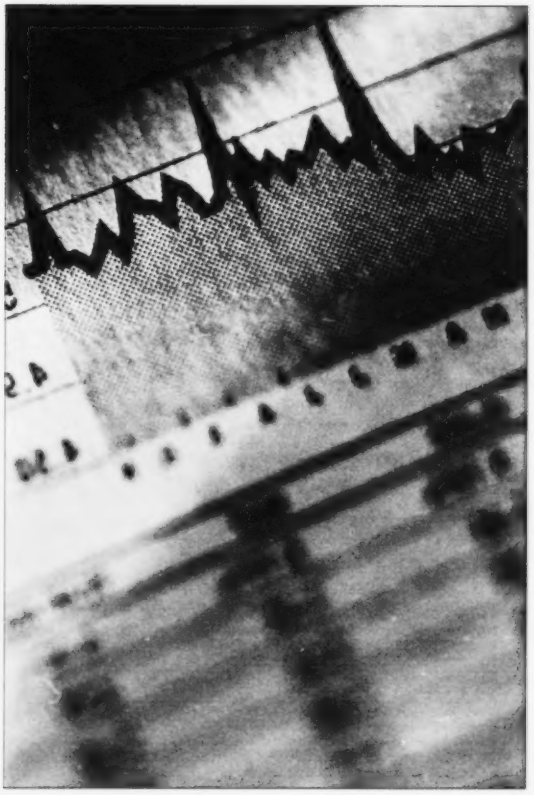


Table 45. Operating Criteria Appeal Statistics

	2004	2005
Enforcement actions	1	1
Appeals received	0	0
Appeal rate	**0%**	**0%**
Appeals granted	N/A	N/A
Appeal denial rate	**N/A**	**N/A**

- In 2005, the Fort McMurray Oil Sands Office continued to monitor surface-mined oil sands licensee compliance with the standards and requirements described in
  - the *Oil Sands Conservation Act*,
  - the *Oil Sands Conservation Regulation*,
  - *ID 2001-7: Operating Criteria—Resource Recovery Requirements for the Oil Sands Mine and Processing Plant Sites*,
  - *ID 2001-3: Sulphur Recovery Guidelines for the Province of Alberta*,
  - various other IDs and ILs, such as the memorandums of understanding between Alberta Environment and the EUB respecting spills and reporting requirements, and
  - licensee conditions of approval.
- In 2005, a total of 44 incident investigations, inspections, and audits were carried out by EUB staff in Fort McMurray:
  - 26 incident investigations
  - 9 site inspections
  - 9 audits
- From this, one previous enforcement action was maintained in place from 2004 and two new enforceable action plans were developed in 2005.
- Significant incidents in 2005 included two major fires in the upgraders and several hydrocarbon, tailings, and process-affected water spills.
- In 2006, the Fort McMurray office will become a full Field Surveillance Field Centre. In addition to its existing roles, it expects a much higher work load.

3 Corporate Division



3.1 Information Collection and Dissemination Group

The Information Collection and Dissemination Group in the Information and Systems Services Branch collects and disseminates energy resources information, including oil and gas production, well records, regulatory publications, maps, and various energy databases.

3.1.1 Well Test Data Section

The Well Test Data Section is responsible for the collection of all drillstem test reports, pressure and deliverability data, and gas and fluid analysis. It is responsible for compliance administration of both initial well and annual pool testing requirements.

The well test data compliance reports follow the enforcement policy stated in *ID 97-5: Pressure and Deliverability Testing Oil and Gas Wells in Alberta.*

3.1.1.1 Annual Gas and Oil Pool Pressure Survey Schedules

Unlike information provided in previous years, as of 2005 the annual pressure testing requirement statistics for gas and oil pools are being combined.

The development of these survey schedules is based on established recoverable reserves and stage of depletion plus well productivity (Section 4.5.1 of *Directive 040: Pressure*

and Deliverability Testing Oil and Gas Wells), in addition to EUB-defined "special needs" for the separate gas and oil pool schedules.

Depending on the outcome of the above elements, as well as the number of producing wells in the pool, the frequency of required tests may be anywhere from once per year to once every four years.

The survey schedules are provided on the EUB Web site, with regular updates to identify the current status (outstanding, fulfilled, under review) of requirements.

Detailed Compliance Data for 2004

Table 46. Annual Gas and Oil Pressure Surveys

	2004
Pools requiring surveys	**1 113**
Pool requirements fulfilled	**984**
Minor	
Level 1 - Initial Minor	129
Level 2 - Failure to comply	N/A
Level 3 - Failure to comply	N/A
Level 4 - Failure to comply	N/A
Orders issued	N/A
Proactive compliance rate for Minor	**88%**

Table 47. Annual Gas and Oil Pressure Surveys Appeal Statistics

	2004
Total invoices	129
Appeals received	14
Appeal rate	**11%**
Appeals granted (credit memos)	14
Appeal denial rate	**0%**

Detailed Compliance Data for 2003

Table 48. Annual Oil Pressure Survey

	2003
Pools requiring surveys	**402**
Pool requirements fulfilled	**384**
Minor	
Level 1 - Initial Minor	18
Level 2 - Failure to comply	0
Level 3 - Failure to comply	0
Level 4 - Failure to comply	0
Orders issued	0
Proactive compliance rate for Minor	**95%**

Table 49. Annual Oil Pressure Survey Appeal Statistics

	2003
Total invoices	18
Appeals received	2
Appeal rate	**11%**
Appeals granted (credit memos)	0
Appeal denial rate	**N/A**

- Statistics are unavailable for 2005. Due to the survey period running from January to December, with a 90-day submission time frame for tests conducted on December 31, this information is not available at the time of this report's release.

3.1.1.2 Initial Gas and Oil Testing Requirements

Unlike information provided in previous years, as of 2005 the initial testing requirements for gas and oil wells (i.e., new producing zones or events) are combined.

When the third consecutive month of production is reported on wells, procedures are in place to establish if the complete initial test requirements have been fulfilled in accordance with *Directive 040*.

Most oil and gas wells are required to be tested once they are drilled and before any significant production or reservoir depletion occurs.

Almost all gas wells are required to also have a deliverability/absolute open flow potential test completed, with a preference to testing in line as opposed to flaring.

These wells and their missing data requirements are provided on the EUB Web site with regular updates.

Detailed Compliance Data for 2005

Table 50. Initial Gas and Oil Well Testing

	2005
Wells that must meet initial test requirements	**10 632**
Wells reported on Web site (notice)	**6 881**
Minor	
Level 1 - Initial Minor	359
Level 2 - Failure to comply	0
Level 3 - Failure to comply	0
Level 4 - Failure to comply	0
Orders issued	0
Proactive compliance rate for Minor	**97%**

Table 51. Initial Gas and Oil Well Testing Appeal Statistics

	2005
Total invoices	359
Appeals received	92
Appeal rate	**26%**
Appeals granted (credit memos)	90
Appeal denial rate	**2%**

- The two most common initial testing Minor noncompliance events in 2005 were failure to submit and improper test submissions (e.g., wrong Test Purpose Indicator).
- The Well Test Data Section allows licensees an opportunity to resubmit corrected data; this can result in most appeals being granted, as indicated above.

Detailed Compliance Data for 2003 – 2004

Table 52. Initial Oil Well Pressure

	2003	2004
Wells that must meet pressure test requirements	**13 513**	**21 328**
Notice letters sent	**477**	**585**
Minor		
Level 1 - Initial Minor	107	90
Level 2 - Failure to comply	2	2
Level 3 - Failure to comply	0	0
Level 4 - Failure to comply	0	0
Orders issued	0	0
Proactive compliance rate for Minor	**96%**	**97%**

Table 53. Initial Oil Well Pressure Appeal Statistics

	2003	2004
Total invoices	107	90
Appeals received	20	9
Appeal rate	**19%**	**10%**
Appeals granted (credit memos)	17	8
Appeal denial rate	**15%**	**12%**

Table 54. Initial Gas Well Deliverability

	2003	2004
Wells that must meet deliverability requirements	**22 204**	**41 576**
Notice letters sent	**7 786**	**11 395**
Minor		
Level 1 - Initial Minor	549	360
Level 2 - Failure to comply	40	6
Level 3 - Failure to comply	0	0
Level 4 - Failure to comply	0	0
Orders issued	0	0
Proactive compliance rate for Minor	**65%**	**73%**

Table 55. Initial Gas Well Deliverability Appeal Statistics

	2003	2004
Total invoices	549	360
Appeals received	60	41
Appeal rate	**11%**	**11%**
Appeals granted (credit memos)	46	38
Appeal denial rate	**23%**	**7%**

- In January 2006, it was discovered that totals prior to 2005 for "Wells that must meet Initial Testing Requirements" and "Notice Letters Sent" were inaccurate due to incorrect summary results within the initial "gas" requirement program. Most gas wells require up to three specific tests to fulfill the requirement, and the number of expected tests was reported. Totals prior to 2005 have not been corrected. Totals for 2005 are accurate.

3.1.2 Production and Well Data Services Section

3.1.2.1 Monthly Volumetric Reporting

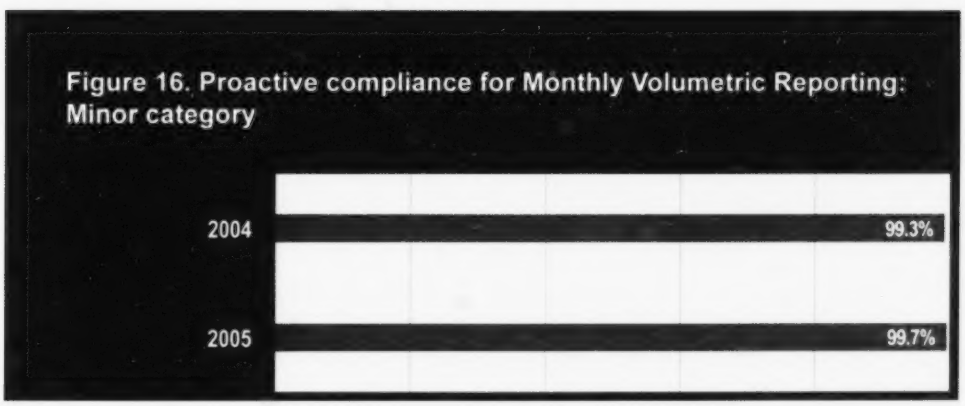
The EUB requires each oil and gas licensee in Alberta to file a record in the Petroleum Registry of Alberta (Registry) on the monthly activities at wells, facilities, and pipelines. The EUB gathers the data to maintain an accurate historical record of a well's hydrocarbon and by-product production.

The Registry facilitates the exchange of data among upstream oil and gas industry partners and between industry and the Alberta Ministry of Energy.

Facility licensees must enter all well and facility volumetric data into the Registry on a monthly basis for

- batteries
- gas gathering systems
- gas plants
- custom treating
- injection
- meter stations
- pipelines
- refineries
- terminals

Prior to the EUB's extraction of volumetric data each month, the Registry validates and balances all volumetric data submitted since the last EUB extraction. The Registry determines which facilities are missing, and if data have been submitted for a facility, which wells are missing. The Registry sends notifications to facility licensees that are in error or are still missing from previous submission cycles. Licensees that do not respond and correct facilities in error or submit missing data prior to the next EUB extraction are subject to enforcement actions.



Detailed Compliance Data for 2004 - 2005

Table 56. Monthly Volumetric Reporting

	2004	2005
Facilities that must submit reports*	**238 576**	**274 237**
Number of errors	**1 573**	**1137**
Minor		
Level 1 - Initial Minor	925	767
Warning	169	169
Level 2 - Failure to comply	56	29
Level 3 - Failure to comply	0	0
Level 4 - Failure to comply	0	0
Orders issued	0	0
Proactive compliance rate for Minor	**99.3%**	**99.7%**

* The facility counts reflect the total expected "active" facilities for each production month in 2005 only.

- The most common errors each month are
  - well(s) missing from a facility due to either well status changes or retroactive facility link changes
  - metering differences
  - facility imbalance errors
- Errors typically spike during the Christmas and summer vacation periods.

Table 57. Monthly Volumetric Reporting Appeal Statistics

	2004	2005
Total invoices	925	767
Appeals received	323	180
Appeal rate	**35%**	**23%**
Appeals granted (credit memos)	291	153
Appeal denial rate	**10%**	**15%**

- The most common reason for appealing an invoice is a result of another licensee's submission or non-submission of volumetric or infrastructure data.
- The Production and Well Data Services (PWDS) section will accept an appeal within 15 days of an invoice date. The EUB notifies the submitting operator of the results of the appeal in writing within 10 calendar days of its receipt.
- *Guide 7: Production Accounting Handbook,* September 2002 draft version (now *Directive 007*) reflects changes due to the implementation of the Petroleum Registry of Alberta. *Directive 007* will be reissued to reflect the regulatory reporting requirements for the filing of well, facility, and pipeline monthly volumetric information and well status changes required by Section 12 of the *Oil and Gas Conservation Regulations.*

3.1.2.2 Well Drilling and Completions Data Requirement

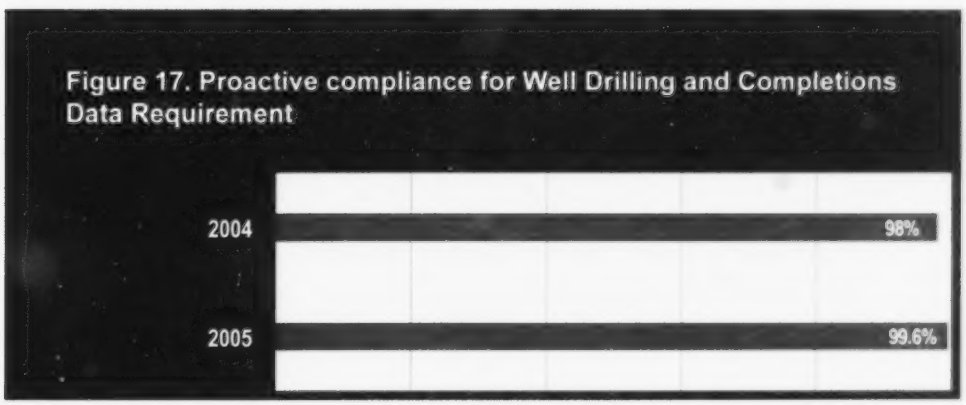
Section 12.010 of the *Oil and Gas Conservation Regulations* requires the licensee or representative of the licensee to keep on file records and reports of daily operations on wells that are in the process of being drilled, completed, reconditioned, or abandoned, in accordance with the current edition of *Directive 059: Well Drilling and Completion Data Filing Requirements.*

PWDS collects the drilling and completion data to maintain an accurate record of each well drilled in Alberta, both for use within the EUB and for the use of the oil and gas industry in performing drilling and servicing operations in a safe and efficient manner.

Within 30 days from the conclusion of an operation or prior to a well status change required for the volumetric submission to the Petroleum Registry of Alberta, the licensee or its representative must submit the electronic drilling and/or completion data to the EUB. Within 7 days of the acceptance of the electronic data by PWDS, one hard-copy report of the daily records must be submitted to the EUB Core Research Centre.

Failure to submit drilling and completion data could result in

- environmental issues
- cancellation of licences
- inaccurate well evaluations
- hindering the required data flow



Detailed Compliance Data for 2004 – 2005

Table 58. Well Drilling and Completions Data Requirement

	2004	2005
Notification	**497**	**466**
Generic		
Level 1 - Initial	11	2
Level 2 - Failure to comply	0	0
Level 3 - Failure to comply	0	0
Level 4 - Failure to comply	0	0
Orders issued	0	0
Proactive compliance rate	**98%**	**99.6%**

Table 59. Well Drilling and Completions Data Requirement Appeal Statistics

	2004	2005
Enforcement actions	11	2
Appeals received	0	0
Appeal rate	**0%**	**0%**
Appeals granted (credit memos)	N/A	N/A
Appeal denial rate	**N/A**	**N/A**

- The most common well drilling and completions data requirement noncompliances were data corrections and non-submission of data. Although drilling activity increased in 2005, there were fewer noncompliances than in 2004. This can be attributed to industry becoming more knowledgeable about the EUB's well data submission requirements.

3.1.3 Geological Data Section

3.1.3.1 Well Drilling Log Reporting

The Geological Data Section is responsible for the collection, validation, and compliance of well logs as legislated in the *Oil and Gas Act* and *Regulations*, Section 11.140. The collection of paper logs includes both open and cased hole logs.

Digital log submissions are required for open hole logs only, in accordance with *Directive 021: Standards for the Submission of Digital Log Data to the EUB*.

Noncompliances in the form of paper logs either missing or late or exempt logging waivers are administered monthly.

Core analysis data are also submitted to this section, in accordance with Section 11.040(1) of the *Oil and Gas Act* and *Regulations*.

Detailed Compliance Data for 2005

Table 60. Annual Log Submissions

	2005
Number of Logs Processed	**279 813**
Minor	
Level 1 - Initial Minor	0
Level 2 - Failure to comply	0
Level 3 - Failure to comply	0
Level 4 - Failure to comply	0
Orders issued	0
Proactive compliance rate for Minor	**100%**

- Core analysis data must be submitted within one month of the completion of the analysis involving routine measurements of porosity, permeability, or fluid saturation.
- The core intervals are verified against well drilling and completions data to ensure that data submissions (core intervals) are correct.
- Approximately 2240 core analyses were submitted in 2005.

4 Appeals to the Enforcement Advisor

The Enforcement Advisor reviews second-level enforcement appeals for all audit/inspection categories of the EUB.

Detailed Compliance Data for 2003 – 2005

Table 61. Appeals to the Enforcement Advisor

	2003	2004	2005
Appeals received	10•	5	6
Referred back to EUB group	0	0	0
Appeals granted	2	3	2
Appeals denied	7	2	4
Appeal denial rate	**78%**	**40%**	**67%**

• One of these appeals was withdrawn.

5 Summary of Field Surveillance Activity

5.1 Introduction

The EUB Public Safety/Field Surveillance Branch conducts inspections and monitors the activities of the oil and gas industry. This summary provides readers with information and statistics related to those activities. The information gathered is analyzed in order to allocate resources more efficiently, predict trends, and determine future actions to improve industry's understanding of and compliance with EUB requirements.

Currently, the EUB Field Surveillance Branch has eight Field Centres located throughout Alberta (see Figure 18). A suboffice of the Grande Prairie Field Centre is located in High Level. In April 2006, High Level will become a fully operational Field Centre. The EUB also has a regional office located in Fort McMurray, which is responsible for oil sands development, mining, and processing.

5.2 Role of Field Surveillance Staff

As part of the EUB's overall surveillance and enforcement role, field staff have three primary goals.

1) **Licensee/Operator Field Performance**: Reduce potential public safety and environmental impacts from oil and gas activity by

Figure 18. EUB Field Centre boundaries and Fort McMurray office

- inspecting drilling and service rigs, oil and gas facilities, and pipelines to ensure that licensees are in compliance with all applicable standards, specifications, and approval conditions;
- focusing inspection activities on higher-risk facilities, such as sour gas wells, pipelines, and facilities located near environmentally sensitive locations;
- focusing on problem licensees with poor inspection records, with the goal of long-term improvements; and
- taking appropriate enforcement action when noncompliance occurs.

2) **Incident Response**: Timely and effective response to minimize the effects on the public and environment from incidents by

- responding to oil and gas emergencies;

- responding to and addressing complaints related to energy development and environmental issues; and
- monitoring the cleanup of oil and saltwater spills.

3) **Community and Aboriginal Relations**: Work with industry to increase understanding of EUB requirements and improve the public's understanding of the EUB and its services by
   - attending meetings with the public and licensees to assist in resolving issues;
   - participating in community meetings to answer questions and provide information about the EUB's regulatory process;
   - educating industry on new and revised requirements; and
   - meeting with local authorities, communities, and synergy groups and explaining the EUB's roles and responsibilities.

5.3 Inspections

Inspections are prioritized based on the weighting of three key criteria—*operator* (licensee/contractor) history, site *sensitivity*, and *inherent* risk (OSI)—with respect to the facility/operation. Field staff focus on licensees with previous unsatisfactory inspections, including those with repeat noncompliance. Sensitivity is determined by whether the facility is in a forested or agricultural area, with an increased inspection emphasis on areas with high numbers of public complaints and high frequency of environmental incidents. The inherent risk of a facility or operation is determined by reviewing specific technical details about the facility, such as the complexity of the operation and whether the facility is sweet or sour.

The total number of initial field inspections/investigations, which includes well site inspections, increased from 15 379 in 2004 to 16 782 in 2005. This 9.1 per cent increase is due in part to system improvements and an increased focus by the EUB on inspections (see Table 62).

In this report, the terms "satisfactory" inspection and "minor," "major," and "serious" unsatisfactory inspections are used. It is important that the definition of each is understood to properly interpret the statistics. There are numerous requirements in each inspection discipline, and even if one noncompliance item is identified, the inspection is considered unsatisfactory. The definitions below include those for a minor, major, and serious unsatisfactory event/inspection from *Informational Letter (IL) 99-4: EUB Enforcement Process, Generic Enforcement Ladder, and Field Surveillance Enforcement Ladder*[2] and apply to these terms throughout this report:

- **Satisfactory event/inspection**—A licensee is found in compliance with all regulations/requirements.
- **Minor unsatisfactory event/inspection**—A contravention of regulation(s)/requirement(s) is found that does not result in a direct threat to the public and/or the environment and does not adversely affect oil and gas operations.

[2] Effective January 1, 2006, *Directive 019: Compliance Assurance—Enforcement* replaced *IL 99-4* (see Section 1.4).

Examples of minor unsatisfactory inspection items are pipeline signage missing and garbage and debris not stored in a reasonable manner at an oil or gas facility.

- **Major unsatisfactory event/inspection**—A contravention of regulation(s)/requirement(s) is found that the licensee has failed to address and/or that has the potential to cause an adverse impact on the public and/or the environment.

  Examples of major unsatisfactory inspection items are failure of blowout prevention (BOP) equipment, hydrogen sulphide (H_2S) release causing odours off lease at an oil battery, and not properly informing stakeholders of a proposed development or application in accordance with *Directive 056: Energy Development Applications and Schedules*.

- **Serious unsatisfactory event/inspection**—A total disregard for regulation(s)/requirement(s) is found that is causing or may cause a significant impact on the public and/or environment or an instance of fraud is found.

  Examples of serious unsatisfactory inspection items are conducting an activity without an approval where an approval is required, unaddressed release into water when the licensee was aware but took no action, and BOP equipment missing where required on a drilling or service rig.

Industry's compliance record with respect to satisfactory inspections decreased slightly, from 77.5 per cent in 2004 to 77.4 per cent in 2005. The minor unsatisfactory inspections were 20.5 per cent in 2004, compared to 20.8 per cent in 2005. The overall percentage of major and serious unsatisfactory inspections was 1.8 per cent in 2005, compared to 2.0 per cent in 2004. There were 5 serious unsatisfactory inspections in 2005, compared to 2 the previous year.

The EUB will continue to encourage licensees to proactively identify issues and ensure compliance. In 2005, Field Surveillance staff approved plans from 71 licensees that improved compliance at 826 licensed oil and gas production facilities.

In 2006, staff will continue to focus on pipeline corrosion, noncompliant licensees, air monitoring activities, reduction of odours, and improving communication with synergy groups[3] and communities throughout the province.

Table 62 summarizes the field inspections that occurred in 2005 and includes the number of initial[4] inspections and reinspections[5] in each category. Each inspection category includes the number of satisfactory, minor, major, and serious unsatisfactory inspections.

[3] To ensure that the impact of resource development and operations is minimized on an ongoing and proactive basis, synergy groups are formed to identify issues and work on collaborative solutions to the problems identified. Synergy groups usually involve public, industry, and government representatives.

[4] An initial inspection is the first inspection on a facility in a designated time period.

[5] A reinspection is a follow-up to a deficiency found at a facility during the initial inspection.

Table 62. Field inspections/investigations, 2005[1]

	Initial	Satisfactory	Minor unsatisfactory	Major unsatisfactory	Serious unsatisfactory	Reinspection
Drilling rigs	469	382	54	33	0	0
Service rigs	230	197	29	4	0	0
Oil production facilities	3 422	2 491	868	62	1	30
Gas production facilities	3 791	2 767	990	34	0	22
Pipeline construction/ testing	446	411	19	15	1	0
Pipeline failure/hits	993	880	39	74	0	15
Pipeline operations	208	103	78	27	0	3
Waste management facilities	66	40	22	4	0	26
Drilling waste management						
-Nonroutine	11	8	1	2	0	3
-Routine	166	138	12	16	0	28
Well site inspections	6 980	5 566	1 377	34	3	12
TOTAL	16 782	12 983	3 489	305	5	139

[1] For definitions of minor, major, and serious unsatisfactory inspections, see Section 1.3. Details for each inspection category are found in various sections throughout this report.

5.4 Enforcement

In 2005, staff used the process detailed in *IL 99-4* to ensure that a firm, fair, and consistent approach is taken in all noncompliance situations. Enforcement actions escalate to a higher level if a licensee repeatedly fails to meet EUB requirements. The enforcement process has

- improved EUB staff consistency, efficiency, and effectiveness;
- increased public safety, minimized environmental impact, and improved conservation;
- created a level regulatory playing field for industry; and
- improved industry accountability and the overall compliance rate.

Licensees that do not comply with the requirements or fail to follow EUB direction are subject to escalating enforcement consequences. A licensee's required response to EUB direction and subsequent continued compliance with regulations will result in its compliance status reverting back to satisfactory.

Effective January 1, 2006, *Directive 019: Compliance Assurance—Enforcement* replaced *Information Letter (IL) 99-4: EUB Enforcement Process, Generic Enforcement Ladder and Field Surveillance Enforcement Ladder.* In addition, it superseded the enforcement ladders of all other EUB directives and guides.

Directive 019 updates the EUB's enforcement process to improve process clarity, focus, and efficiency but is still built on the principles that

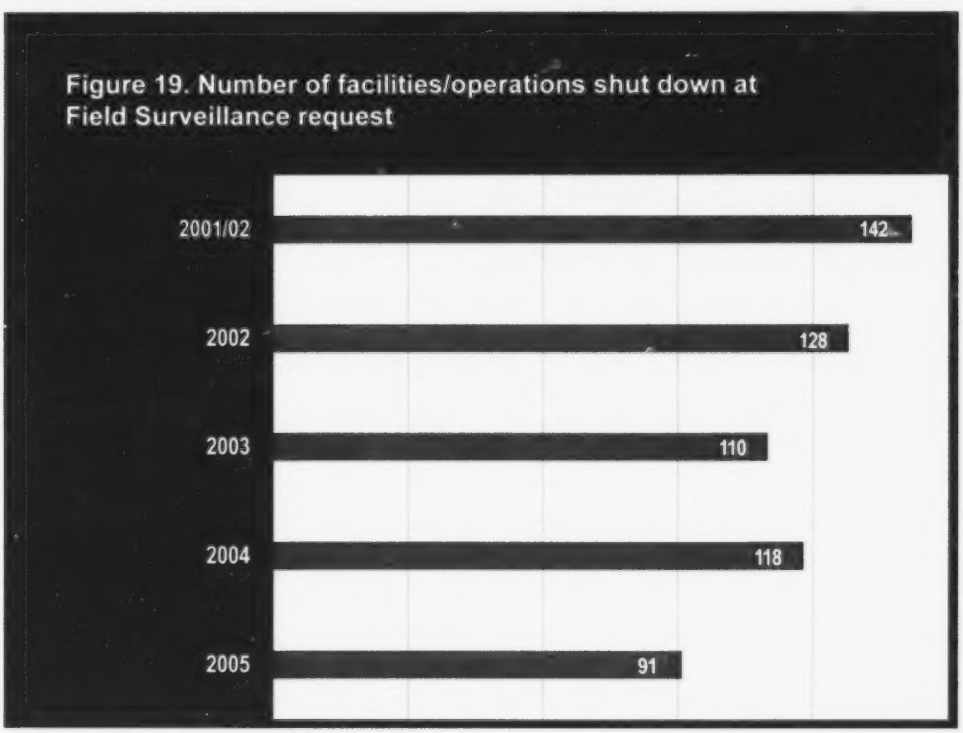
- public safety and environmental protection will not be compromised;
- enforcement will be timely, effective, and appropriate; and
- the licensee is responsible for compliance with EUB requirements and processes.

Additional information regarding *Directive 019* can be found on the EUB's Web site.

Table 63 summarizes the oil and gas operations that were shut down in 2005 as a direct result of EUB enforcement action (also see Figure 19).

Table 63. Facilities/operations shut down at Field Surveillance request, January 1 to December 31, 2005

Type	Approximate number of suspensions	Average duration of shutdown	Most common reasons for suspensions
Drilling rigs	33	3.6 hours	• Operational failure of BOP/accumulator system • Crew training
Service rigs	4	1.75 hours	• Operational failure of BOP/accumulator system
Oil production facilities	17	11 days	• H_2S emissions • Storage
Gas facilities	7	7.6 days	• No dike where required • Unaddressed spill
Pipelines	30	28.8 days	• Ground disturbance activities • Corrosion integrity work
TOTAL	**91**		



5.5 Public Complaints

5.5.1 Response to Public Complaints

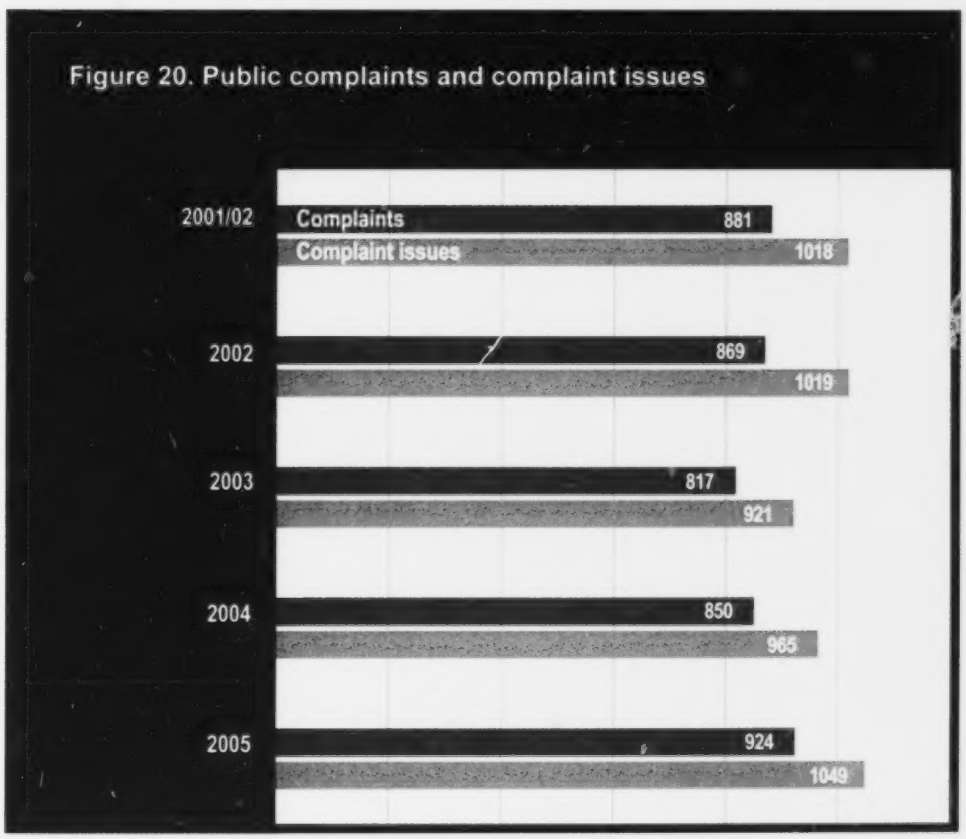
Field staff respond to all complaints related to upstream oil and gas activities, with the goal of ensuring prompt, effective, and lasting resolution to the problems identified.

The EUB recognizes that high activity levels can affect associated public concerns. Responding to and effectively addressing these concerns remain top priorities of field staff.

When a public complaint is received that is outside the EUB's jurisdiction, the individual with the complaint is promptly directed to the appropriate government agency so the matter can be addressed.

In 2005, there was a 9 per cent increase in public complaints compared to 2004. Since some complaints identified more than one issue, the EUB recorded 1049 issues associated with the 924 complaints (see Figure 20).

Figure 20. Public complaints and complaint issues



The EUB will continue to emphasize to industry the benefits and importance of proactive and effective communication with the public. In addition, we will focus on educating the public about the EUB's and industry's roles and responsibilities when development occurs.

5.5.2 Complaint Follow-up

In an effort to improve the level of satisfaction with both EUB and industry responses, a random complaint call-back survey is conducted each month. The information is analyzed to ensure that appropriate complaint response procedures are being used and any questions or concerns are addressed.

Results of the 2005 survey indicate that

- 89.7 per cent of the individuals surveyed said their concerns were satisfactorily resolved, compared to 70 per cent in 2004;
- 56 per cent of the individuals surveyed were satisfied with the licensee's response, compared to 53.5 per cent in 2004; and
- 96.3 per cent of the individuals surveyed were satisfied with the response from the EUB, compared to 92.7 per cent in 2004.

The EUB will continue with its complaint call-back survey to gauge whether we are responding effectively to the public.

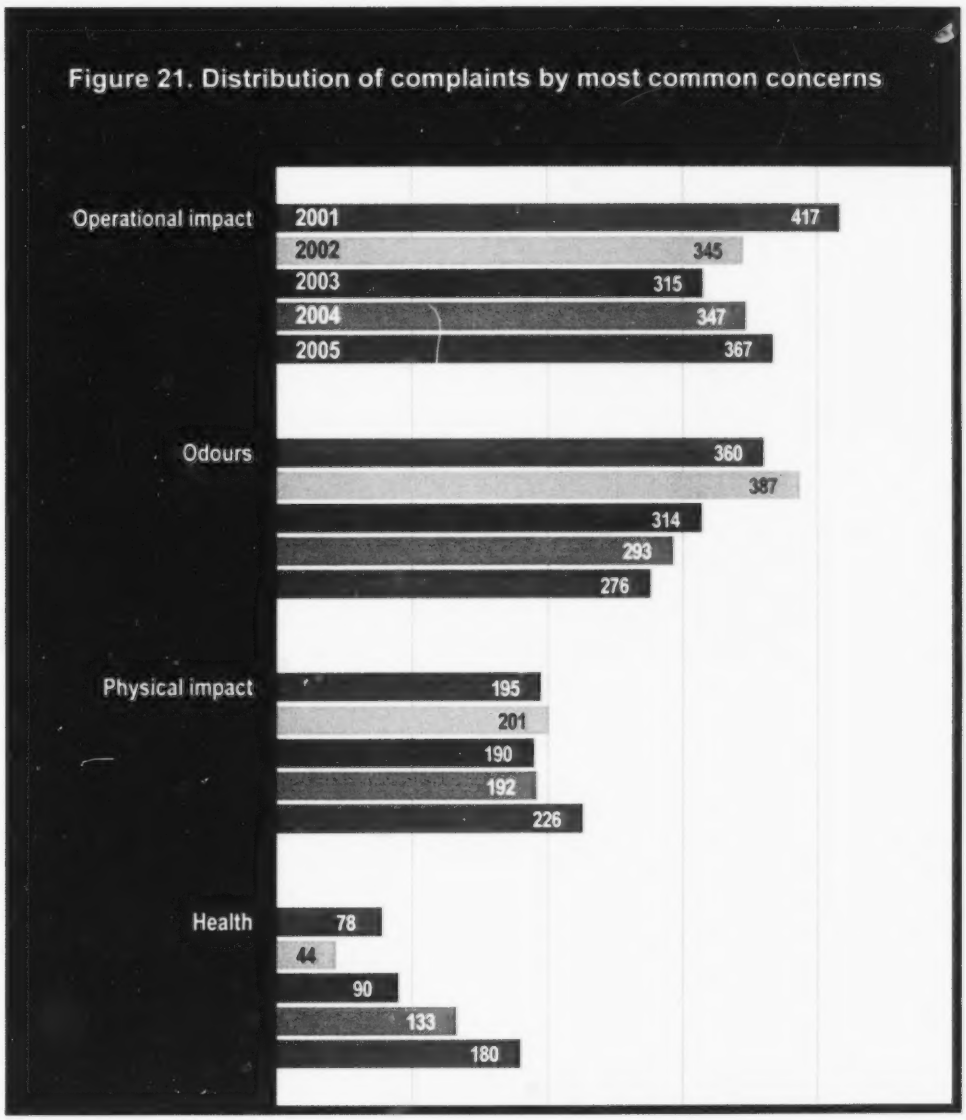
5.5.3 Types of Public Complaints

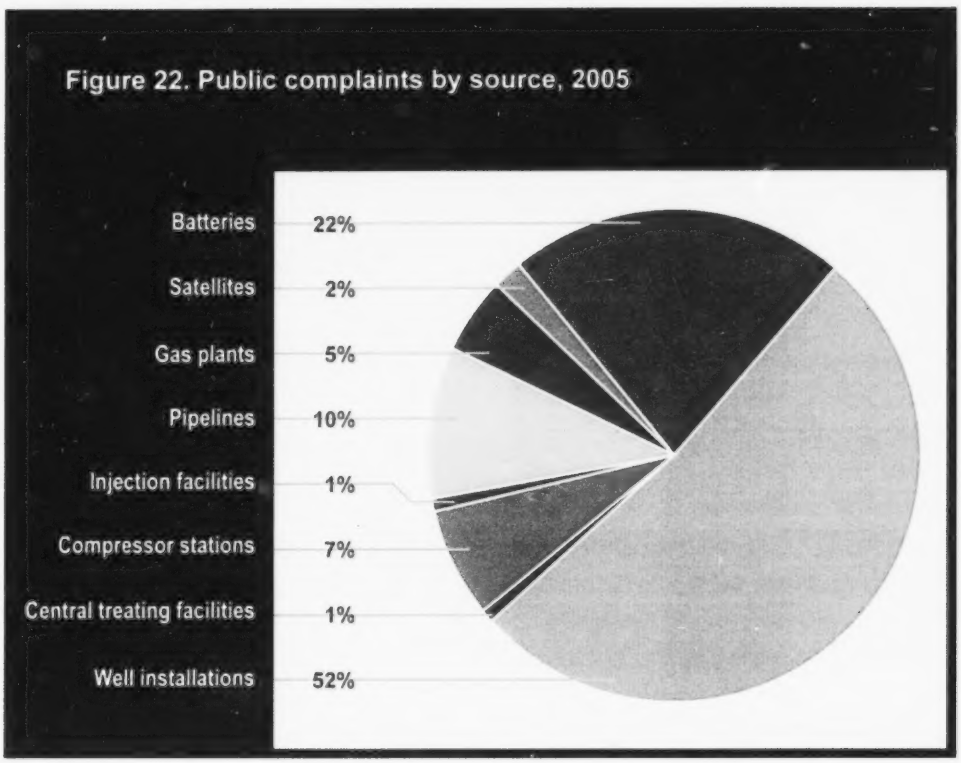
The EUB receives complaints on a variety of issues regarding the upstream petroleum industry. Four of the most common concerns are operational impacts (noise, flare, smoke, spill), odours (H_2S, sulphur dioxide [SO_2], total hydrocarbon content [THC]), physical impact (lease management, property damage, public hazard), and health (human and livestock) (see Figure 21) issues. Odour concerns represented 26 per cent of all public complaints received in 2005.

Figure 22 indicates that well installations were the source of more than 50 per cent of public complaints.

Staff follow up by making presentations to industry outlining the most common sources and causes of public complaints and describing measures to reduce the impacts. This proactive communication with industry will continue in 2006. In addition, staff will continue to hold meetings with licensees in areas of the province with sour gas production in a continuing effort to reduce transient H_2S emissions.

Figure 21. Distribution of complaints by most common concerns





5.6 Stakeholder Involvement Activities

5.6.1 Synergy Groups

Synergy groups are usually made up of public, industry, and government representatives who work collaboratively to improve communications and identify and address issues. Their size, structure, and membership depend on factors such as population, industry activity, geographical location, and sensitivity of an area. Field staff participate in most of these groups and strongly endorse this effective and cooperative approach. Table 64 lists the 57 active synergy groups located throughout the province.

For information regarding synergy-related events, see the Synergy Alberta Web site at www.synergyalberta.ca.

Table 64. Active synergy groups in Alberta

Bonnyville Field Centre
- Bonnyville Oil Producers Trucking Committee
- Cumulative Effects Monitoring Association (CEMA)
- Lakeland Industry & Community Association (LICA)
- Marie Lake Landowners Association
- Muriel Lake Basin Management Society
- Wood Buffalo Environmental Association

Grande Prairie Field Centre
- Chinchaga Operators Synergy
- Clear Hills Surface Rights Association
- County Industrial Park Operators Group
- Fourth Creek Group
- Greater Kakwa Area
- Hay/Zama Committee
- Happy Valley Surface Rights Committee
- Peace Air Shed Zone Association
- Peace Arch Operators Group
- Rainbow Lake Operators Group
- Saddle Hills Awareness Committee
- Valleyview Operators Group
- Western Cree Tribal Council

Red Deer Field Centre
- Butte Advisory Committee
- Calumet Synergy Group
- Eagle Hill/Valley Community Advisory Committee
- Harmattan Elkton Community Advisory Committee
- Olds Community Advisory Panel
- Panther Advisory Group (PAG)
- Parkland Airshed Management Zone Association (PAMZ)
- Sunchild/Ochiese Mutual Aid Group (SOMAG)
- Sundre Petroleum Operators Group (SPOG)
- West Central Stakeholders Group

Wainwright Field Centre
- Hardisty Terminal Complex Committee

Drayton Valley Field Centre
- Alberta Utility Location and Coordination Council
- Battle Lake Synergy Group
- Edson Creative Solutions
- Genesee Synergy Group
- Pembina Area Natural Resources Advisory Committee (PANRAC)
- Rider Pembina Advisory Committee
- West Central Air Shed Society

Medicine Hat Field Centre
- Society of Grassland Naturalists
- Shallow Gas Management Association
- Medicine Hat Urban Environment and Recreation Advisory Board

Midnapore Field Centre
- Cochrane Pipeline Operators Committee
- Indus Community / Petroleum Industry Association
- Quirk Creek Gas Processing Community Committee
- Southwest Alberta Sustainable Community Initiative (SASCI)
- Taber Area Operators Group
- Vulcan County Multi-stakeholder Group
- Wheatland Surface Rights Action Group

St. Albert Field Centre
- Alberta Industrial Heartland Association (AIHA)
- East Parkland Liaison Committee (EPLC)
- Edmonton Area Pipeline Utility Operators Committee (EAPUOC)
- Fort Assiniboine Liaison Committee
- Northeast Capital Industrial Association
- Rimbey and Area Multi-Stakeholders Group
- St. Albert & Area Multi-Stakeholder Project (STAMP)
- Transportation & Utilities Corridor Committee (TUC)
- Watelet Gas Plant Area Residents Group
- Western Canada Cavern Operators Group

5.6.2 Open Houses

Field Surveillance participated in 34 open houses in 2005 to listen to concerns, answer questions, address issues, and improve the public's understanding related to proposed developments. Open houses are another way to improve communication and relationships between industry, the public, and government.

The EUB will continue to attend open houses to ensure awareness of the EUB's roles and responsibilities when proposed development could affect the community.

5.7 Major Initiatives

5.7.1 Emergency Response Plans

The minimum EUB emergency preparedness and response requirements are detailed in *Directive 071: Emergency Preparedness and Response Requirements for the Upstream Petroleum Industry.* It is the responsibility of the licensee to determine the size of a project's emergency planning zone (EPZ), identify any surface developments within the EPZ, and determine whether an emergency response plan (ERP) is required.

The purpose of an ERP is to ensure a quick, effective response to an emergency in order to protect the public. An ERP addresses worst-case emergency scenarios, potential hazards to the public, and systems to ensure an adequate response.

As part of the inspection process, field staff determine if the licensee has an approved ERP on site, has reviewed the plan with the potentially affected residents, and through exercises has assessed its capability to implement its ERP.

A more detailed audit protocol for assessing a licensee's capability of implementing its ERPs will be implemented in 2006.

6 Drilling and Servicing

6.1 Introduction

Drilling and servicing operations continue to be extremely active in Alberta. Over the last five years, more than 80 000 wells were drilled, which continues to result in many challenges for both the EUB and industry. Both parties continue to focus on drilling and servicing of wells safely while minimizing the impact on the environment and the public.

6.2 Well Control Occurrences

Well control data are collected and used to monitor industry performance and identify when changes to regulations, inspection procedures, or operating practices are required.

Kicks,[6] blowouts,[7] and industry's response to these incidents continue to be the primary indicators of industry's drilling, servicing, and operating performance.

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[6] Kick—Any unexpected entry of water, gas, oil, or other formation fluid into a wellbore that is under control and can be circulated out during drilling operations.

[7] Blowout—An unintended flowing of wellbore fluids (oil, gas, water, or other substance) at surface that cannot be controlled by existing wellhead and/or blowout prevention equipment, or flowing from one formation to another formation(s) (underground blowout) that cannot be controlled by increasing the fluid density. Control can only be regained by installing additional surface equipment and/or replacing existing equipment to allow shut-in or to permit the circulation of control fluids or by drilling a relief well.

Industry's continued commitment to maintaining high training standards for rig personnel involved in well control procedures has helped keep the number of well control occurrences to a minimum.

6.2.1 Drilling Blowouts/Kicks

In 2005, ten blowouts occurred during the drilling of 20 545 wells (see Table 65). These blowouts occurred during the drilling of surface hole when there were no blowout preventers installed on the well. Nine blowouts were freshwater artesian flows and one was a sweet gas flow that ignited, resulting in a fire that destroyed the drilling rig. There was no significant impact on the public and minimal impact on the environment as a result of these occurrences.

Table 65. Drilling well control occurrences

	2001	2002	2003	2004	2005
Wells drilled	14 307	13 193	17 108	18 572	20 545
Blowouts	2	6	1	4	10

There were 128 kicks recorded in 2005, which equates to a kick occurrence rate of about 6 kicks per 1000 wells drilled. This rate has remained relatively constant for the past five years.

6.2.2 Servicing Blowouts

In 2005, there were seven blowouts during servicing operations (see Table 66). Two occurred on sour wells, while the other five were on sweet wells. Five of the seven blowouts were attributed to equipment failure and two to operator error. One of the blowouts (caused by an explosion) resulted in one fatality and two injuries to workers at the site. All of the blowouts were of short duration, and environmental impact was minimal.

Table 66. Servicing well control occurrences

	2001	2002	2003	2004	2005
Blowouts	6	5	4	4	7

In 2005, the EUB completed its extensive investigation of a sour gas blowout (caused by a wellbore explosion) that occurred in December 2004. The investigation results highlight the findings, conclusions, and recommendations for actions to be taken by the EUB, industry, and other government agencies. The EUB has accepted all recommendations made by the investigation team. The *ACC Acheson 2-26-52-26, Acheson Field December 2004 Blowout* Incident Report is available on the EUB's Web site.

As part of its ongoing commitment to reduce occurrences such as wellbore explosions, on February 6, 2006, the EUB issued *Directive 033: Well Servicing and Completions Operations—Interim Requirements Regarding the Potential for Explosive Mixtures and Ignition in Wells*. This directive requires operators undertaking completion or well servicing operations to document and implement practices to safely manage the potential for explosive mixtures and ignition in wellbores.

6.2.3 Other Blowouts

In 2005, fifteen blowouts in the "other"[8] category were recorded (see Table 67). All of these blowouts occurred on sweet wells. Seven were attributed to third-party damage, with some type of equipment striking a well. The remaining eight blowouts were the result of equipment failure. All blowouts were of short duration and had minimal impact on the public or the environment.

Table 67. Other well control occurrences

	2001	2002	2003	2004	2005
Blowouts	3	6	16	15	15

The EUB investigates all blowouts to identify when changes are needed to equipment, procedures, or regulations to continually improve industry standards and reduce these occurrences.

6.3 Drilling Activity Level and Inspections

2005 was another record year for drilling in Alberta, with 20 545 wells drilled.[9] This compares to the 18 572 wells drilled in 2004 (see Table 68) and represents a 10.6 per cent increase.

Table 68. Drilling inspection results and activity 2001 - 2005

	2001	2002	2003	2004	2005
Wells drilled	14 307	13 193	17 108	18 572	20 545
Drilling rigs inspected	499	433	400	528	469
% inspected	3.5	3.3	2.3	2.8	2.3
% satisfactory	89.7	89.6	88.5	84.5	81.5
% unsatisfactory (minor, major, and serious)	10.3	10.4	11.5	15.5	18.5

6.3.1 Inspections

The EUB prioritizes drilling rig inspections based on the weighting of three key criteria: *operator* (licensee/contractor) performance, site *sensitivity*, and *inherent* risk (OSI; see Section 5.3).

In 2005, staff conducted 469 inspections on drilling operations, resulting in 382 satisfactory inspections and 87 unsatisfactory inspections (see Table 68). This compares to 2004, when 528 inspections were conducted, resulting in 446 satisfactory inspections and 82 unsatisfactory inspections. All unsatisfactory items were brought into compliance.

The EUB inspects all critical sour wells at least once before drilling into the critical zone occurs. There were 69 inspections conducted in 2005 on critical sour well drilling operations. This resulted in 64 satisfactory inspections (92.8 per cent) and 5 unsatisfactory inspections (7.2 per cent) being recorded. Of these 5 unsatisfactory inspections, there were 2 minor unsatisfactory inspections, 3 major unsatisfactory inspections, and no serious unsatisfactory inspections. This compares to the previous year's results, when there were 65 critical sour well drilling inspections completed,

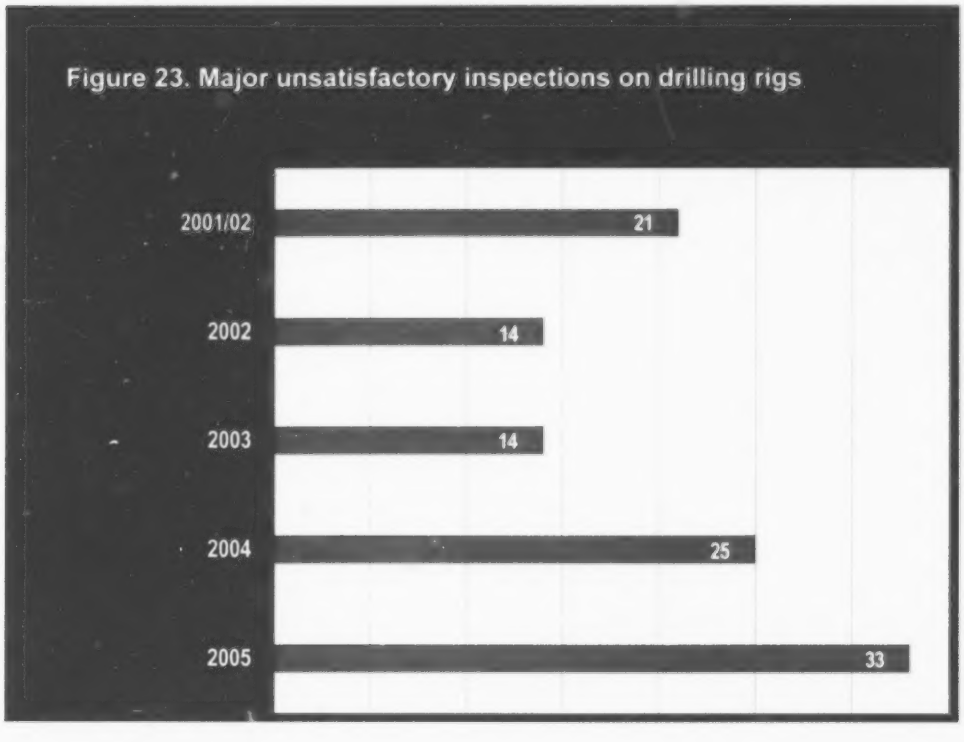
[8] Other –Blowouts that occur at wells not related to a drilling or servicing operation. They include casing failures, wellhead equipment failures, and third-party damage (wellhead strikes, vandalism, etc.).
[9] For the purpose of this report, drilling activity includes spuds (new well starts) and re-entries into existing wells.

resulting in 58 satisfactory inspections (89.2 per cent) and 7 unsatisfactory inspections (10.8 per cent).

6.3.2 Minor, Major, and Serious Unsatisfactory Items

Of the 87 unsatisfactory inspections in 2005, there were 54 minor unsatisfactory inspections (62.1 per cent), 33 major unsatisfactory inspections (37.9 per cent) (see Figure 23), and no serious unsatisfactory inspections. (See Section 5.3 for definitions of satisfactory inspection and minor, major, and serious unsatisfactory inspections.) This compares to 2004, when there were 82 unsatisfactory inspections, of which 56 were minor unsatisfactory inspections (68.3 per cent), 25 were major unsatisfactory inspections (30.5 per cent), and 1 was a serious unsatisfactory inspection (1.2 per cent).

Figure 23. Major unsatisfactory inspections on drilling rigs



Drilling operations were suspended at all rigs with major unsatisfactory items until the deficiencies were corrected. The total shutdown time was about 120 hours. This compares to 2004, when drilling rig shutdowns totalled 97 hours.

In 2006, the EUB will focus on conducting operator awareness sessions to increase industry's understanding of requirements and improve compliance levels.

6.4 Servicing Activity Level and Inspections

2005 was another busy year for well servicing activity in Alberta. This was due in part to the record number of wells drilled during the year.

6.4.1 Inspections

In 2005, staff conducted 230 inspections on well servicing operations, resulting in 197 satisfactory inspections and 33 unsatisfactory inspections (see Table 69). All unsatisfactory items were brought into compliance. This compares to 2004, when 333 inspections were conducted, resulting in 293 satisfactory inspections and 40 unsatisfactory inspections.

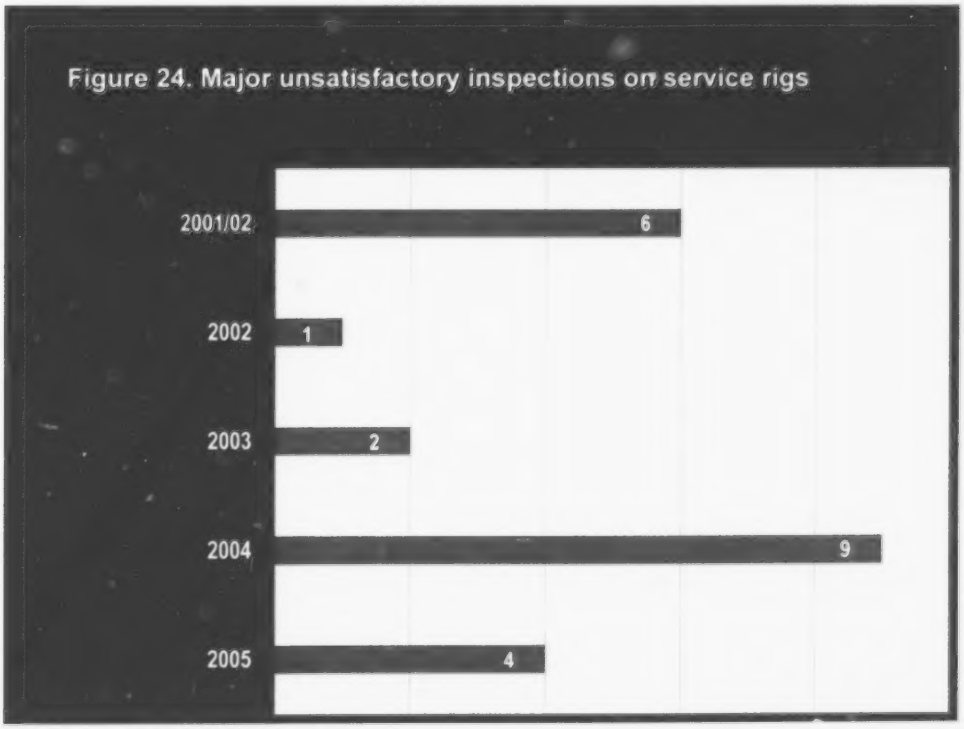
Table 69. EUB servicing inspection results 2001 - 2005

	2001	2002	2003	2004	2005
Service rigs inspected	262	238	223	333	230
% satisfactory	90.5	93.7	90.5	88.0	85.7
% unsatisfactory (minor, major, and serious)	9.5	6.3	9.5	12.0	14.3

6.4.2 Minor, Major, and Serious Unsatisfactory Items

Of the 33 unsatisfactory inspections, there were 29 minor unsatisfactory inspections (87.9 per cent) and 4 major unsatisfactory inspections (12.1 per cent) (see Figure 24). This compares to 2004, when there were 40 unsatisfactory inspections, of which 31 were minor unsatisfactory inspections (77.5 per cent) and 9 were major unsatisfactory inspections (22.5 per cent). There were no serious unsatisfactory inspections noted in 2005.

Servicing operations were suspended at all service rigs with major unsatisfactory items until the deficiencies were corrected. In 2005, the total shutdown time was about 7 hours. This compares to 2004, when service rig shutdowns totalled 31 hours.



6.5 Public Complaints

In 2005, staff investigated 96 public complaints related to the drilling and servicing of wells. The cause of the complaints included such issues as noise, odours, property damage, flaring, and dust created by drilling and service rig traffic. This compares to 2004, when 80 public complaints were received about similar issues.

The EUB continues to investigate all public complaints in Alberta to ensure that appropriate action is taken.

6.6 Inspection Manual Reviews

Directive 036: Drilling Blowout Prevention Requirements and Procedures was revised in 2005. The update was released in February 2006.

7 Oil Facilities

7.1 Introduction

Field staff focus on identifying potential hazards that may affect the public or the environment. This is done by inspecting oil production facilities to ensure compliance with EUB requirements.

In addition, a significant amount of time is spent conducting licensee awareness sessions to increase industry's understanding of EUB requirements and the consequences for noncompliance. During 2005, these sessions were conducted on both an individual and a group licensee basis and included a review of EUB requirements.

7.2 Inventory, Activity Level, and Inspections

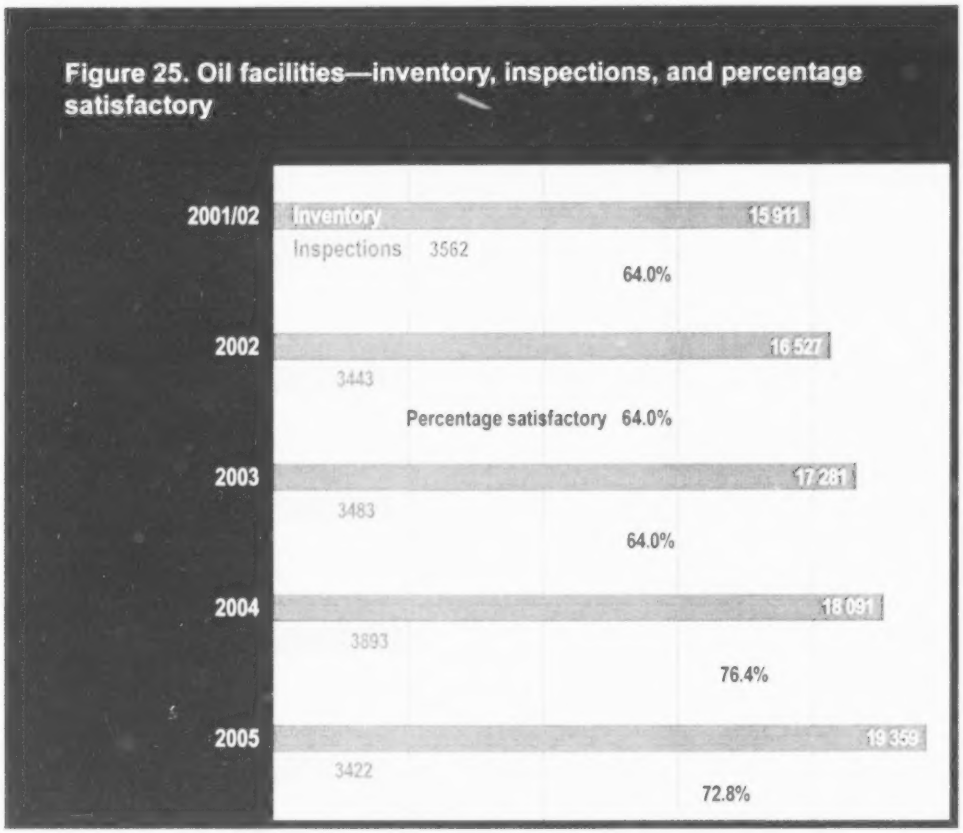
The inventory of conventional oil and crude bitumen facilities continues to increase from previous years. As of the end of 2005 it was

- sweet multiwell batteries 1818
- sour multiwell batteries 935
- sweet single-well batteries 9406
- sour single-well batteries 1956
- sweet satellites 2092

- sour satellites 2242
- sweet injection/disposal facilities 822
- sour injection/disposal facilities 59
- sweet custom treating facilities 28
- sour custom treating facilities 1

Figure 25 shows the inventory of oil facilities, the number of inspections, and the percentage found to be satisfactory (see Section 5.3 for definitions of satisfactory inspection and minor, major, and serious unsatisfactory inspections). Of the 3422 inspections conducted in 2005, there was a 72.8 per cent satisfactory inspection rate. Of the 27.2 per cent unsatisfactory inspections, 25.4 per cent were minor unsatisfactory inspections.

Figure 25. Oil facilities—inventory, inspections, and percentage satisfactory



Using the OSI[10] priority inspection process, staff conducted 3422 facility inspections in 2005.

There were 62 major unsatisfactory inspections and 1 serious unsatisfactory inspection in 2005. There were 17 oil production facilities suspended (see Table 63, on page 50) and

[10] As stated in Section 1.3, the EUB conducts inspections based on priority selection criteria that include *operator* (licensee/contractor) performance history, site *sensitivity*, and *inherent* risk of the operation (OSI).

- sour satellites 2242
- sweet injection/disposal facilities 822
- sour injection/disposal facilities 59
- sweet custom treating facilities 28
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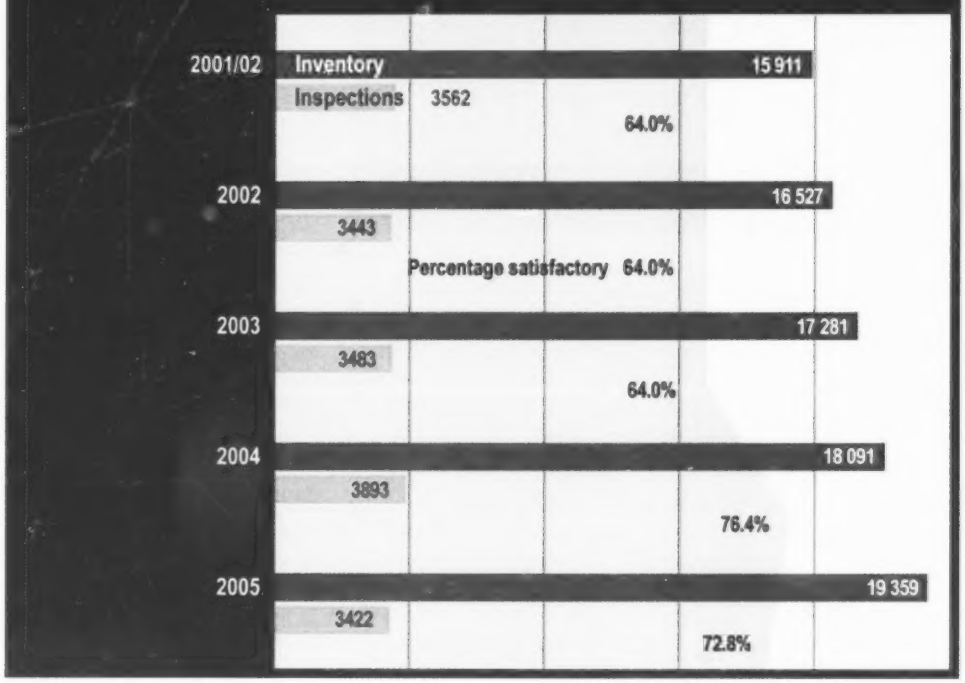
Figure 25 shows the inventory of oil facilities, the number of inspections, and the percentage found to be satisfactory (see Section 5.3 for definitions of satisfactory inspection and minor, major, and serious unsatisfactory inspections). Of the 3422 inspections conducted in 2005, there was a 72.8 per cent satisfactory inspection rate. Of the 27.2 per cent unsatisfactory inspections, 25.4 per cent were minor unsatisfactory inspections.

Figure 25. Oil facilities—inventory, inspections, and percentage satisfactory



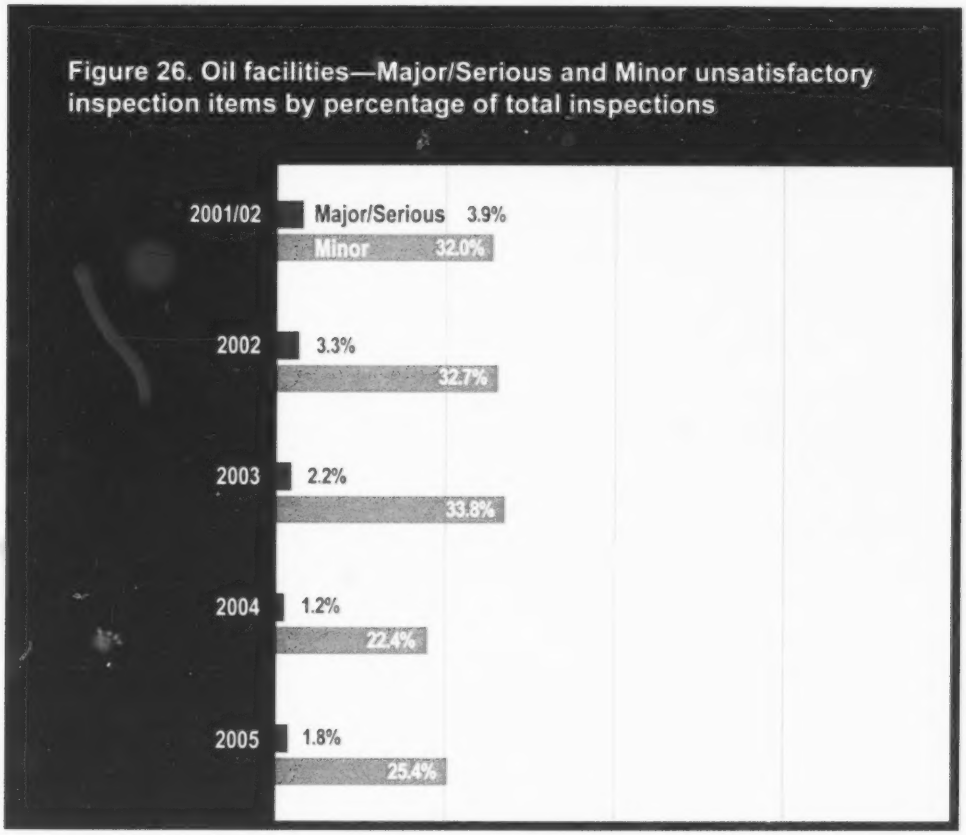
Using the OSI[10] priority inspection process, staff conducted 3422 facility inspections in 2005.

There were 62 major unsatisfactory inspections and 1 serious unsatisfactory inspection in 2005. There were 17 oil production facilities suspended (see Table 63, on page 50) and

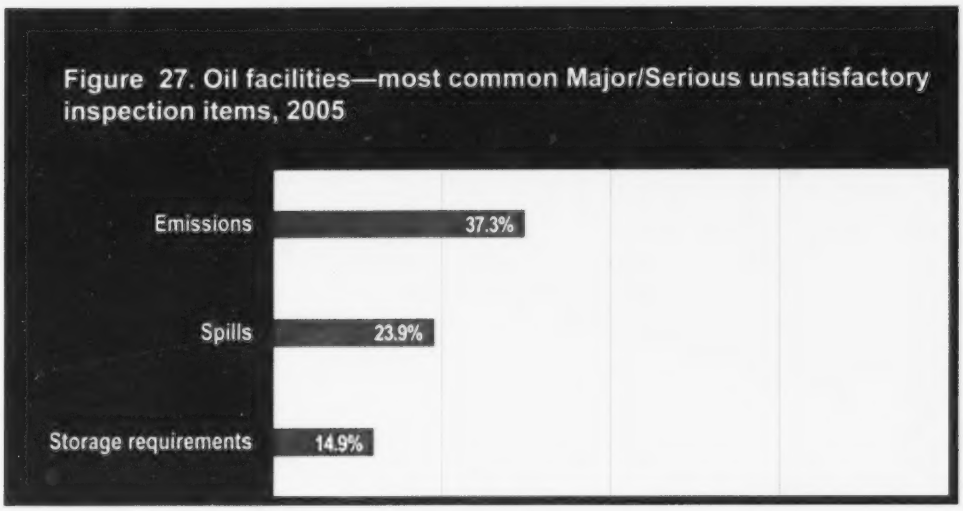
[10] As stated in Section 1.3, the EUB conducts inspections based on priority selection criteria that include *operator* (licensee/contractor) performance history, site *sensitivity*, and *inherent* risk of the operation (OSI).

appropriate enforcement action was taken on all facilities to bring them into compliance. This compares to 45 major and no serious unsatisfactory inspections in 2004.

Figure 26 shows the percentage of facility inspections with minor and major/serious unsatisfactory inspections.



The most common major unsatisfactory inspection items found in 2005 are shown in Figure 27.



The most common major/serious unsatisfactory inspection items were

- equipment failure resulting in H_2S emissions off lease,
- licensee not appropriately cleaning up spills, and
- storage/containment not in accordance with *Directive 055: Storage Requirements for the Upstream Petroleum Industry*.

All noncompliant inspections were dealt with in accordance with *IL 99-4: EUB Enforcement Process*.

In 2005, of the 3422 inspections completed, 868 (25.4 per cent) were classified as minor unsatisfactory inspections. All unsatisfactory inspections were brought into compliance. This compares with 872 minor unsatisfactory inspections (22.4 per cent) out of 3893 in 2004. The most common minor unsatisfactory items found in 2005 are shown in Figure 28.

The EUB will meet with licensees to discuss inspection results, focusing on finding solutions to improve compliance.

The EUB will conduct inspections on sour facilities with site-specific emergency response plans. Staff will also undertake random communication with residents to share inspection results and ensure awareness of the site-specific emergency plans.

7.3 Public Complaints

In 2005, there were 134 public complaints related to oil facilities. This compares to 131 in 2004. All complaints were investigated and appropriate enforcement was applied where required. As shown in Figure 29, over half of the public complaints related to oil facilities in 2005 were due to odours and smoke/flaring.

Figure 28. Oil facilities—most common Minor unsatisfactory inspection items, 2005

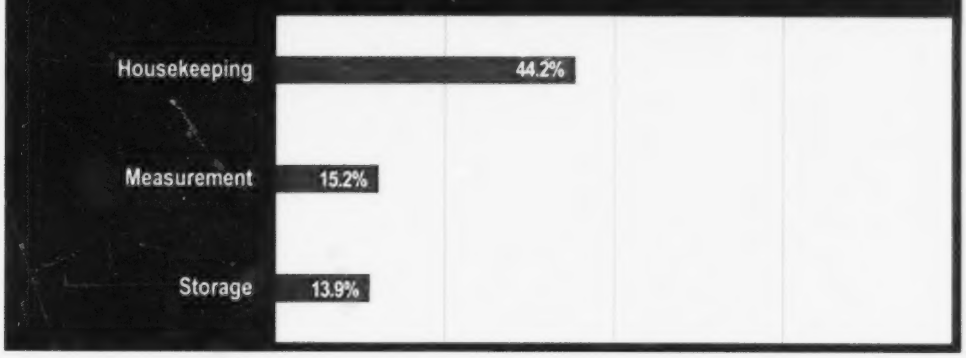
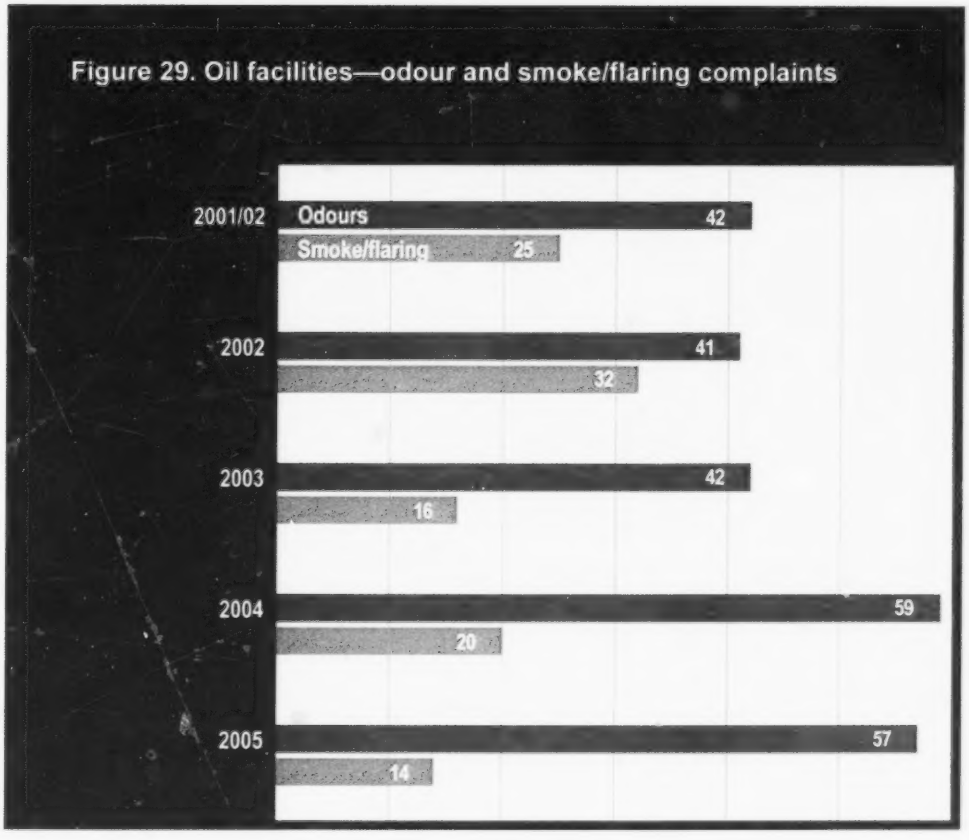


Figure 29. Oil facilities—odour and smoke/flaring complaints



The EUB requires licensees to investigate all sources of emissions and install equipment or use other technology to reduce emissions. In addition, licensees are required to closely monitor operations and proactively communicate with area residents.

The public complaint history of each oil facility is reviewed. If there has been a history of public complaints, field staff take additional action as necessary to achieve lasting improvement.

In 2005, staff identified 12 oil facilities as having multiple complaints. These complaints were related to odours, flaring, smoke, noise, and lease management. Where necessary, repairs and facility upgrades were made by the licensees to remedy the problems. This compares to 11 oil facilities having multiple complaints in 2004.

Staff held a number of group licensee awareness sessions throughout the province in 2005. The objective of such sessions is to educate industry on EUB requirements and to encourage the development of best operating practices to help reduce the impact on the public and environment. These sessions will continue in 2006.

7.4 Licensees with High Minor Unsatisfactory Inspection Rates

The process to identify licensees with a minor unsatisfactory inspection rate above the industry average is described in *IL 99-4*. The EUB identified three licensees that had a high minor unsatisfactory inspection rate greater than 45 per cent in 2004. Each licensee was requested to review its operating practices and develop an action plan to address the high minor unsatisfactory rate.

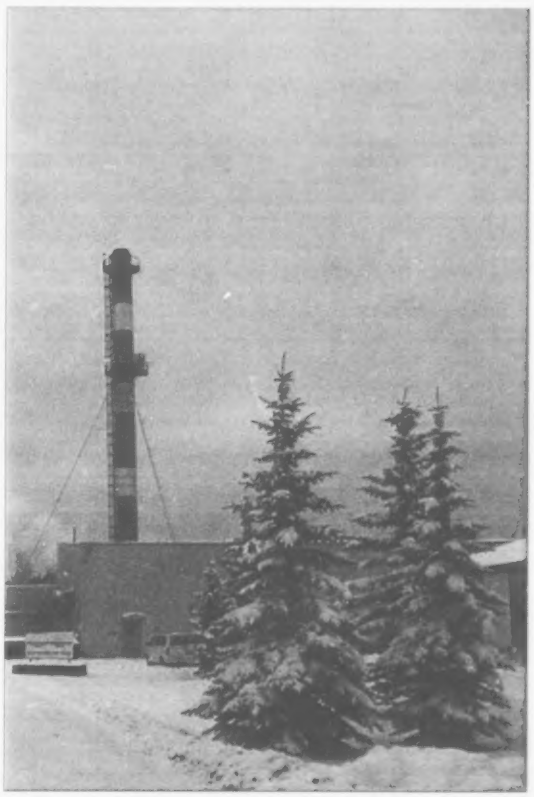
The three licensees had a combined total of 103 initial inspections in 2004. Minor unsatisfactory inspections were found at 53 oil facilities, resulting in a 51.4 per cent unsatisfactory rate. After bringing this matter to the attention of these licensees, a combined total of 22 inspections were conducted on their oil facilities between July 1 and December 31, 2005. Minor unsatisfactory inspections were identified at five facilities, resulting in a 22.7 per cent unsatisfactory rate.

Measures taken by these licensees to improve their compliance rate included

- meeting with EUB staff to gain a better understanding of requirements and concerns, and
- meeting or having training sessions as required with licensee personnel and contract operators to ensure that they are aware of EUB requirements.

The EUB will continue focusing on licensees with high minor unsatisfactory rates in 2006.

8 Gas Facilities



8.1 Introduction

In 2005, the EUB focused on training new staff on how to conduct detailed operational inspections. Operational inspections require inspectors to review records, such as operating licences and approvals, inspection, complaint, and release histories, waste manifests, flaring records, sulphur balance reports, and various volumetric production data, to ensure that the facility is in compliance with all requirements.

8.2 Inventory, Activity Level, and Inspections

The inventory of gas facilities for 2005 was

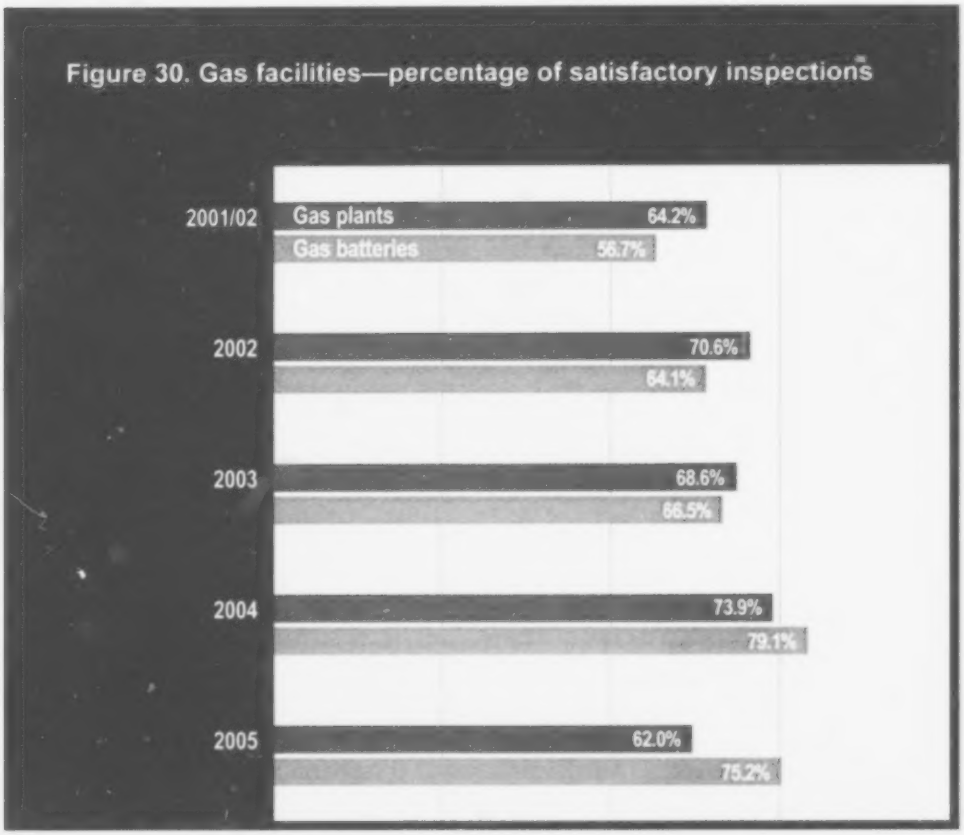
- gas batteries 5629
- sweet gas plants 541
- sour gas plants 274
- compressor stations 4662

In 2005, 3791 gas facility inspections were conducted including 16 detailed operational inspections. This was an increase of 32 per cent compared to 2004, when 2864 inspections were conducted.

As shown in Figure 30, in 2005 the satisfactory inspection rate for gas plants and gas batteries decreased (see Section 1.3 for definitions of satisfactory, minor, major, and serious inspections). The minor inspection rate for 2005 increased to 26.1 per cent, compared to 24.8 per cent in 2004. The number of major inspections at facilities increased slightly during 2005 to 0.9 per cent, compared to 0.8 per cent in 2004 (see Figure 31). There were no serious unsatisfactory inspections in 2005.

All noncompliance items were addressed in accordance with *IL 99-4: EUB Enforcement Process*. The EUB will continue to meet with licensees to discuss inspection results, focusing on identifying the most common unsatisfactory items and finding solutions to improve compliance.

Figure 30. Gas facilities—percentage of satisfactory inspections



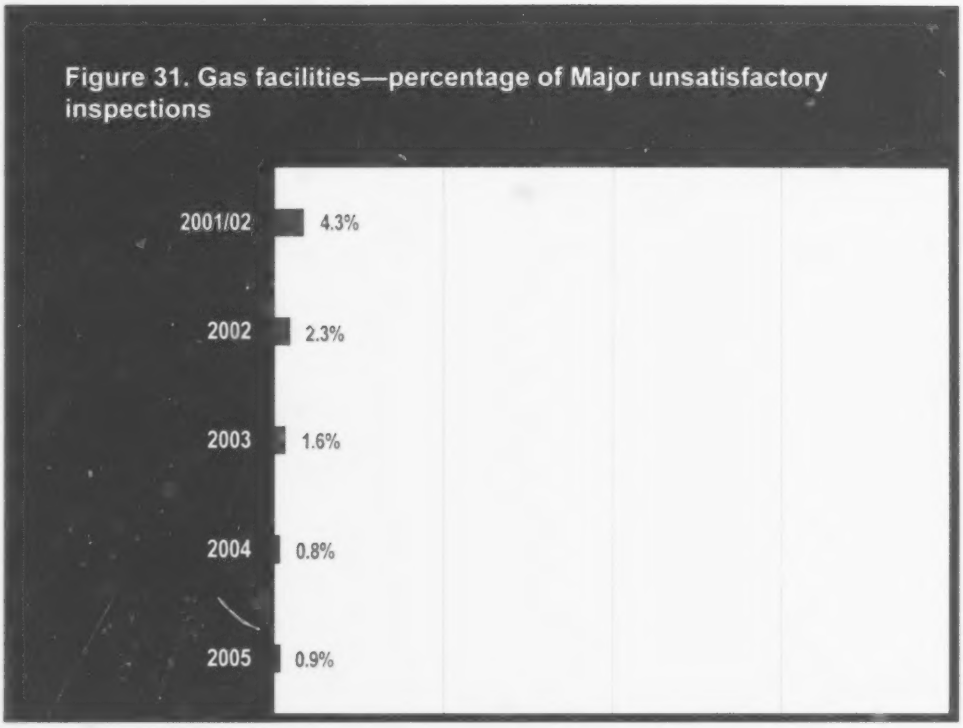
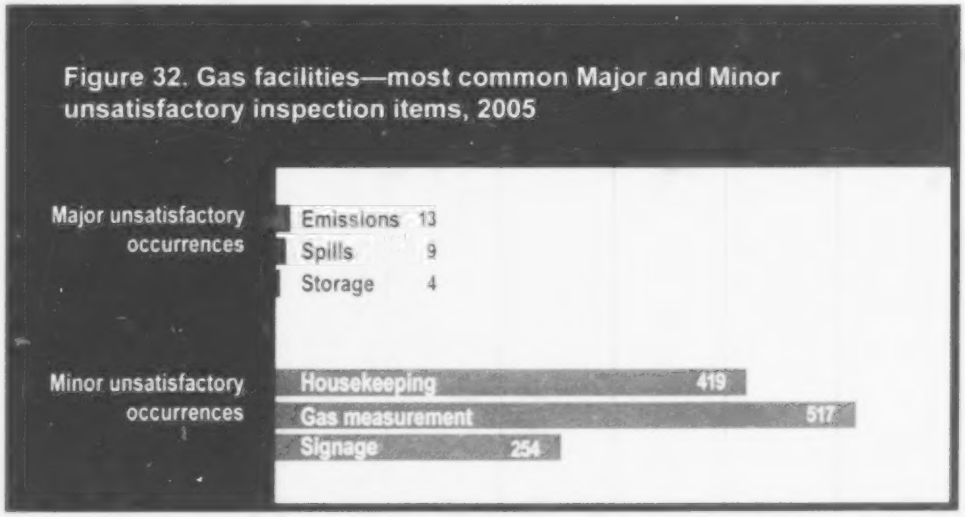
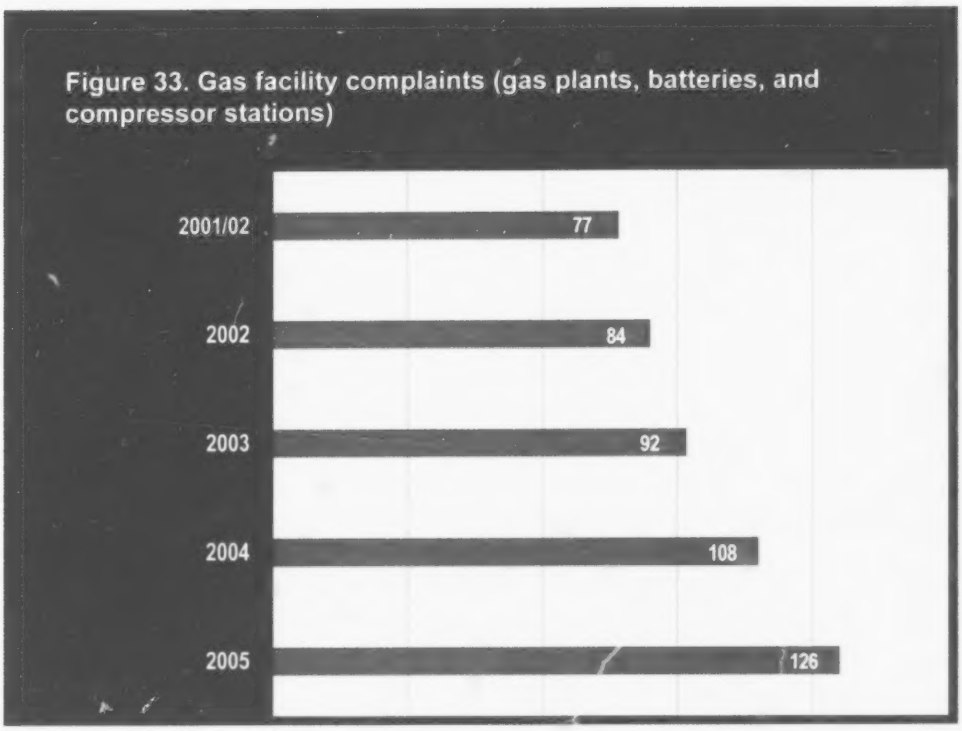


Figure 32 shows the most common minor and major unsatisfactory inspections items in 2005.



8.3 Public Complaints

The number of public complaints regarding gas facilities increased by 17 per cent to 126 in 2005 from 108 in 2004 (see Figure 33).



In 2005, the most common concerns at gas facilities were

- operational impacts (e.g., noise, dust, traffic),
- odours (e.g., hydrocarbon, H_2S), and
- physical impacts (e.g., housekeeping, weeds, erosion, contamination).

The EUB investigated all complaints received and found that 61 per cent of the facilities inspected were satisfactory.

Staff identified 12 gas facilities that had multiple complaints resulting in findings of noncompliance. These were related to odours, flaring, smoke, noise, and lease management. Repairs and facility upgrades were made by the licensees to remedy the problems. This compares to 23 gas facilities having multiple complaints in 2004.

Staff held a number of group licensee awareness sessions throughout the province. The objective of these sessions is to educate industry on EUB requirements and to encourage the development of best operating practices to help reduce the impact on the public and environment. These sessions will continue in 2006.

8.4 Licensees with High Minor Unsatisfactory Inspection Rates

The process to identify licensees with a minor unsatisfactory inspection rate above the industry average is described in *IL 99-4*. The EUB identified three licensees that had a high minor unsatisfactory inspection rate greater than 38 per cent in 2004. Each licensee was requested to review its inspection record and develop an action plan to address the high minor unsatisfactory rate.

The three licensees had a combined total of 102 initial inspections in 2004. There were 42 gas facilities that had minor unsatisfactory noncompliance inspections, resulting in a 41.2 per cent unsatisfactory rate. After reviewing the inspection records with each of the licensees, 56 additional inspections were conducted from July 1 through December 31, 2005. A follow-up review was conducted, and the minor unsatisfactory rate improved to 35.7 per cent.

Measures taken by these licensees to improve their compliance rate included

- meeting with EUB staff to gain a better understanding of EUB requirements and concerns, and
- meeting or having training sessions as required with licensee personnel and contract operators to ensure that they are aware of EUB requirements.

Further improvements are expected as the EUB continues to monitor these licensees to ensure compliance.

8.5 Sulphur Recovery

Sulphur recovery efficiencies at gas plants recovering saleable sulphur is at 98.9 per cent. Overall, sulphur emissions have decreased by 26 per cent since 2000 (from 78 000 to 57 000 tonnes of sulphur emissions). This decrease is due to the declining sulphur inlets at these plants and the EUB/Alberta Environment *Interim Directive (ID) 2001-3: Sulphur Recovery Guidelines for the Province of Alberta*, which has resulted in improved performance (see Figure 34).

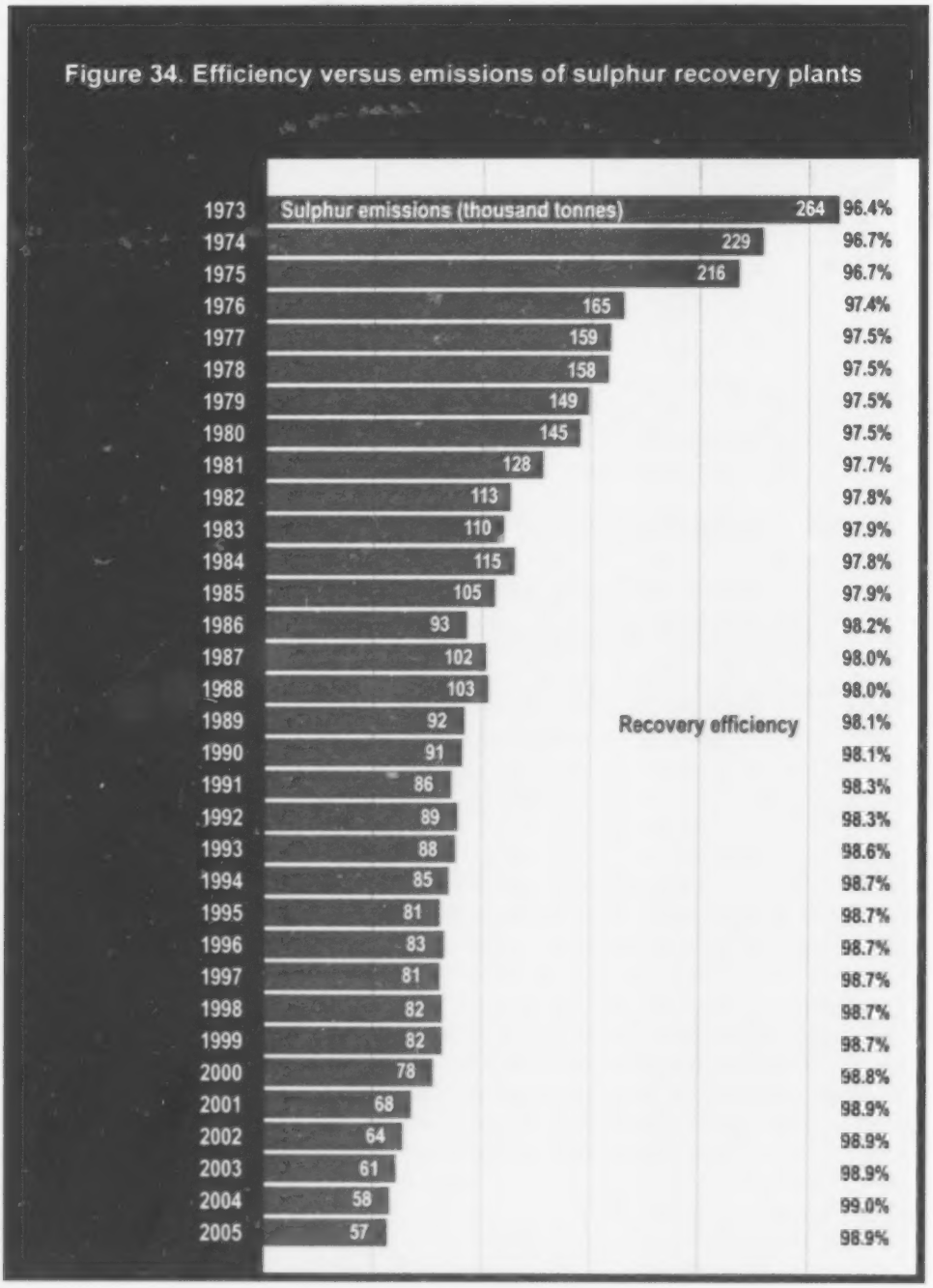
ID 2001-3 details the requirements when a plant has to be relicensed to meet the new sulphur recovery standards. In the last six years, a number of sour gas plants have been relicensed to meet the new standards. For some of these plants, it has meant the addition of significant new equipment. Details of these changes are reported in the annual EUB publication *ST101: Sulphur Recovery and Sulphur Emissions at Alberta Sour Gas Plants*. *ST101* allows licensees of plants with sulphur recovery to take immediate advantage of performance improvements to delay the full relicensing requirements.

8.6 Coalbed Methane

In 2005, the EUB conducted 189 inspections on coalbed methane (CBM) facilities. There were 20 CBM facilities that had minor unsatisfactory inspections, resulting in a 10.6 per cent unsatisfactory rate. There were no major or serious unsatisfactory inspections in 2005.

CBM is natural gas contained in coal. It consists primarily of methane, the gas used for home heating, gas-fired electrical generation, and industry fuel. CBM is subject to the same EUB drilling, production, and operational rules and regulations as other natural gas. Further information is available in *Informational Letter (IL) 91-11: Coalbed Methane Regulation*.

Figure 34. Efficiency versus emissions of sulphur recovery plants



9 Pipeline

9.1 Introduction

In Alberta, licensees operating pipelines must comply with all applicable standards and EUB regulations. Inspections occur to monitor compliance and apply enforcement measures for noncompliance. (See Section 5.3 for additional information on the EUB's inspection criteria and for definitions of satisfactory inspection and minor, major, and serious unsatisfactory inspections.)

Using *Directive 066: Requirements and Procedures for Pipelines*, staff focus on four key inspection areas:

1) **Pipeline failures**—The Alberta *Pipeline Act* requires licensees of pipelines to report any pipeline failures to the EUB regardless of the cause, magnitude, or consequence. EUB field staff review the cause of the failure to ensure that mitigative measures are taken to prevent similar occurrences in the future.

2) **Construction and pressure testing**—Staff conduct inspections on new pipeline installations to ensure compliance with the requirements of the *Pipeline Act* and *Regulation* and Canadian Standards Association (CSA) standards.

3) **Operations inspections**—Staff conduct inspections on existing pipeline systems to ensure that licensees conduct operational and maintenance activities in accordance with the requirements.

4) **Contact damage**—Staff inspect sites where pipeline contact damage has occurred. Awareness seminars are held for licensees and contractors to educate them on requirements that must be met prior to commencing ground disturbance activities to enhance worker and public safety, and mitigate environmental impacts.

The length and type of pipelines in Alberta under EUB jurisdiction are listed in Table 70.

Table 70. Length of pipelines by type in Alberta under EUB jurisdiction (km)*

Year	Crude oil	Natural gas	Sour gas	Water	Multiphase	Others	Total
Total prior to 2001	16 761	174 555	15 659	18 052	43 284	23 464	291 775
2001	408	12 539	1504	773	2 389	1 164	18 777
2002	300	8 064	540	380	962	553	10 799
2003	273	11 715	695	546	1 112	706	15 047
2004	402	13 010	873	845	2 017	882	18 029
2005	116	14 255	880	320	1 221	1 901	18 693
Total	**18 260**	**234 138**	**20 151**	**20 916**	**50 985**	**28 670**	**373 120**

*Numbers were calculated by adding all statuses (operating, permitted, abandoned, discontinued, and suspended) for all types of pipelines as of December 31 of each year.

9.2 Pipeline Failures/Hits

A pipeline failure is defined as the failure of the pipeline to contain the substance being transported. For statistical purposes, pipeline hits are included in the pipeline failure numbers.

- A hit is defined as striking a buried pipeline during a ground disturbance activity resulting in the pipeline or pipeline coating being damaged. A release of product does not necessarily result.

- A leak is defined as an opening, crack, or hole in a pipeline causing some product to be released, but not immediately impairing the operation of the pipeline.

- A rupture is defined as the instantaneous tearing or fracturing of the pipeline material, immediately impairing the operation of the pipeline.

The EUB's release reporting and inspection priority system applies to all pipeline releases and is defined as follows:

- Priority 1 releases are those that pose the most serious environmental and public impact. Field staff make every attempt to immediately respond to the location; however, when that is not possible, all attempts are made to have another regulatory agency respond for the initial assessment. In these cases, staff will conduct an inspection as soon as possible.

- Priority 2 releases are those where a significant volume has been released or the impact on the environment is a concern. They may include low-volume releases if the

licensee is new or has a poor inspection history. These sites are generally inspected within 7 working days.

- Priority 3 releases are low-volume but may include medium-volume releases if the licensee has a satisfactory inspection history. In these cases, staff have a high degree of confidence that the release will be appropriately handled. Historically, about 25 per cent of priority 3 spills are inspected to ensure that they are satisfactorily addressed.

If a pipeline failure/hit occurs, the licensee or operating company is required to inform the local EUB Field Centre. Field staff record the information into a database, including date of occurrence, geographic location, pipeline specifications, operating conditions, environmental release information, cause, and priority rating of the release.

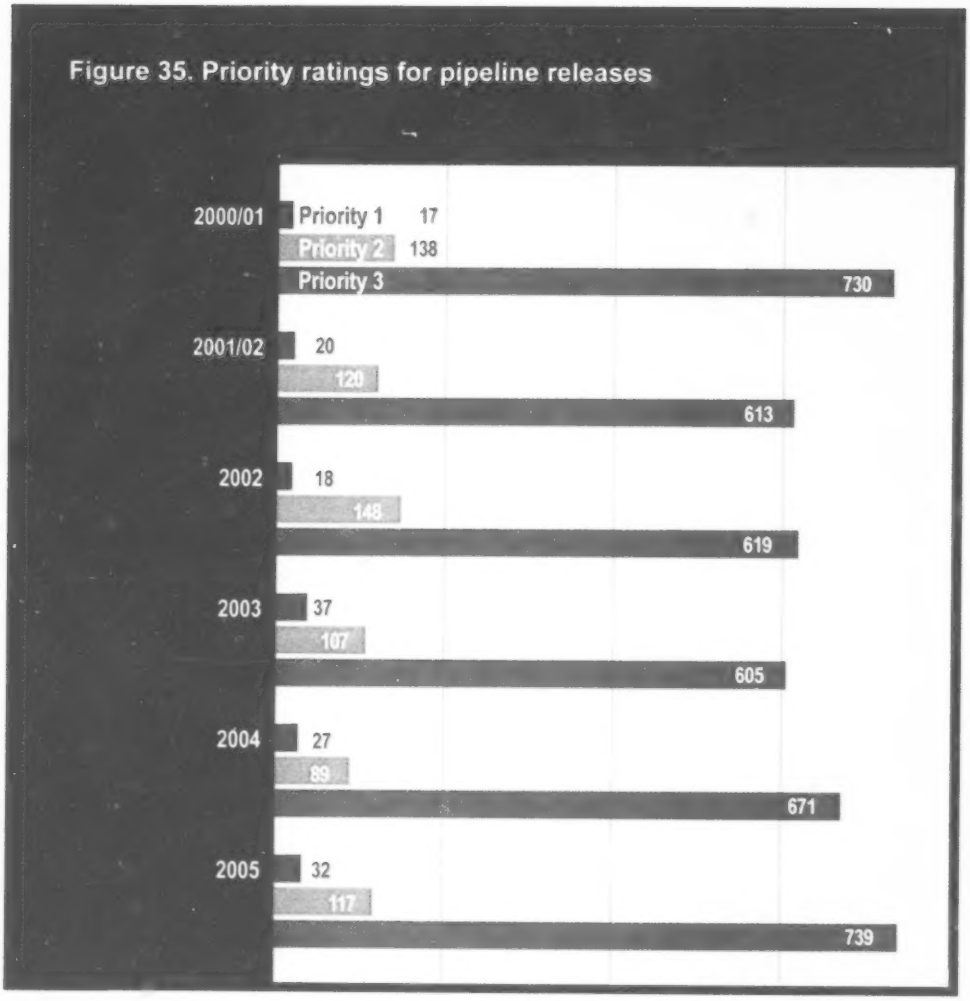
There were 13 ruptures in 2005, which is consistent with the number of ruptures in 2004. Table 71 shows the various causes of failures and corresponding inspections during 2004.

Table 71. Failures/hits reported from January 1 to December 31, 2005*

	Incidents		Leaks		Ruptures	
Cause	#	%	#	Inspections	#	Inspections
Construction damage	49	4.9	49	31	0	0
Damage by others (hits with release)	23	2.3	15	9	8	4
Damage by others (hits, no release)	105	10.7	0	74	0	0
Earth movement	21	2.1	21	8	0	0
External corrosion	116	11.7	115	48	1	0
Fittings/valve failure	44	4.4	44	13	0	0
Girth weld	19	2.0	19	4	0	0
Installation failure	10	1.0	10	7	0	0
Internal corrosion	420	42.3	420	188	0	0
Joint failure	16	1.6	16	6	0	0
Mechanical damage	5	0.5	5	1	0	0
Mechanical joint	7	0.7	7	1	0	0
Overpressure	16	1.6	16	10	0	0
Pipe body failure	33	3.3	32	14	1	0
Seam failure	6	0.6	6	3	0	0
Weld failure	0		0	0	0	0
Licensee error	18	1.8	16	4	2	1
Miscellaneous	22	2.2	22	7	0	0
Unknown	63	6.3	62	19	1	1
TOTAL	993	100	875	447	13	6
% OF INCIDENTS		100	88.1		1.3	

* Statistics include 87 pressure test failures.

Figure 35 shows the priority ratings for pipeline releases compared to previous years. Leak detection systems, training and awareness programs, automated shut-in equipment, and pipeline patrols are effective in minimizing the effects of releases.



The following is a summary of the pipeline releases/hits from January 1 to December 31, 2005:

Ruptures	1.3%	Priority 1 releases	3.2%
Leaks	88.1%	Priority 2 releases	11.8%
Hits, no release	10.6%	Priority 3 releases	74.4%
	100%	No release	10.6%
			100%

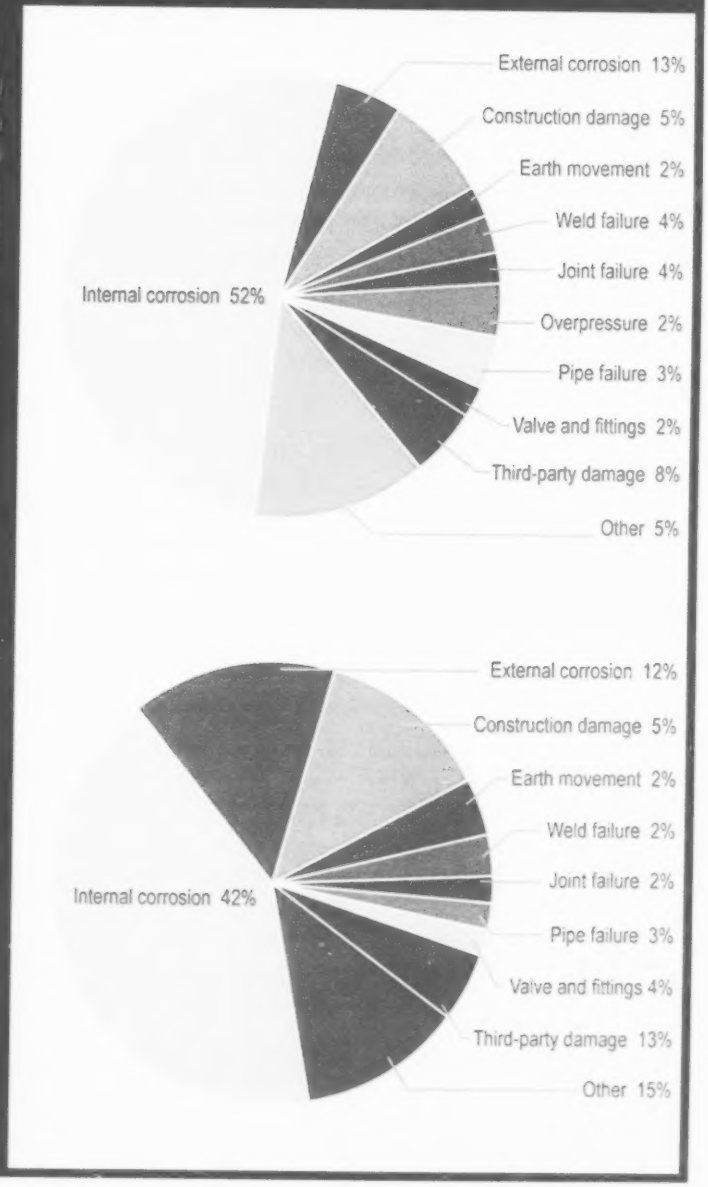
When a failure occurs, the licensee must confirm the integrity of the entire pipeline segment , perform an engineering assessment on the entire pipeline system that it operates in, and outline measures to prevent further occurrences. When the cause of the failure is not readily identifiable, staff require the licensee to perform a failure analysis.

All pipeline failures are inspected or an investigation is conducted into the failure mechanism. In 2005, field staff conducted 453 inspections and investigated 540 incidents. The total inspections/investigations include the 128 contact damage incidents that occurred. There were 880 satisfactory inspections, 39 minor unsatisfactory inspections,

74 major unsatisfactory inspections, and no serious unsatisfactory inspections. All unsatisfactory inspections were brought into compliance.

Although corrosion continues to be the main cause of pipeline failures, there are fewer internal corrosion failures compared to historical data (see Figure 36).

Figure 36. Pipeline failures by cause (%)



External corrosion remained relatively constant in 2005 compared to historical data. Reducing failure incidents in older pipeline coating systems continues to present challenges, such as the shielding of cathodic protection, disbondment, temperature variation, and environmental stresses.

Figure 37 shows the top three product lines that are failing to be multiphase, natural gas, and water.

Figure 38 shows that the majority of failures are occurring in smaller-diameter gathering lines, primarily the 60.3 millimetre (mm), 88.9 mm, and 114.3 mm systems.

Figure 39 shows a substantial improvement over the 1988 benchmark of 5 failures/1000 kilometres (km). In 2005, the rate was 2.3/1000 km.

9.3 Construction and Testing Inspections

Field staff conducted 446 pipeline construction and test inspections in 2005, of which 411 were satisfactory, 19 were minor unsatisfactory, 15 were major unsatisfactory, and 1 was serious unsatisfactory. All unsatisfactory inspection items were brought into compliance. This compares to 564 pipeline construction and test inspections conducted in 2004, when there were 536 satisfactory inspections, 18 minor unsatisfactory inspections, 9 major unsatisfactory inspections, and 1 serious unsatisfactory inspection.

9.4 Operations Inspections

An operations inspection involves a field inspection of the pipeline system and a review of a licensee's maintenance documentation. In 2005, field staff conducted operations inspections on 68 licensees, which included the inspection of 208 licensed pipeline systems. The results were 103 satisfactory inspections, 78 minor unsatisfactory inspections, and 27 major unsatisfactory inspections. There were no serious unsatisfactory inspections. All unsatisfactory inspection items were brought into compliance. This compares to 86 licensees with a total of 285 licensed pipeline systems inspected in 2004, of which there were 188 satisfactory inspections, 69 minor unsatisfactory inspections, 28 major unsatisfactory inspections, and no serious unsatisfactory inspections.

9.5 Contact Damage

There were 128 contact damage incidents in 2005 (see Figure 40). There were 11 minor unsatisfactory inspections, 32 major unsatisfactory inspections, and no serious unsatisfactory inspections. All noncompliance issues were addressed. Following an EUB review, the remaining 85 incidents did not warrant enforcement action. This compares to 84 incidents the previous year, of which 2 were minor unsatisfactory items and 18 were major unsatisfactory items.

Field staff conducted 48 seminars on ground disturbance for industry and the public.

Figure 37. Historical pipeline failures by product being transported

Number of incidents	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Multiphase	318	280	329	310	303	308	323	352	330	327
Water	224	194	196	162	159	174	193	157	183	179
Natural gas	179	230	241	385	420	255	222	232	262	321
Crude	25	20	28	31	29	26	14	17	30	19
Sour gas	19	17	24	31	35	41	23	29	38	22
All other	13	9	4	3	6	4	10	9	4	20

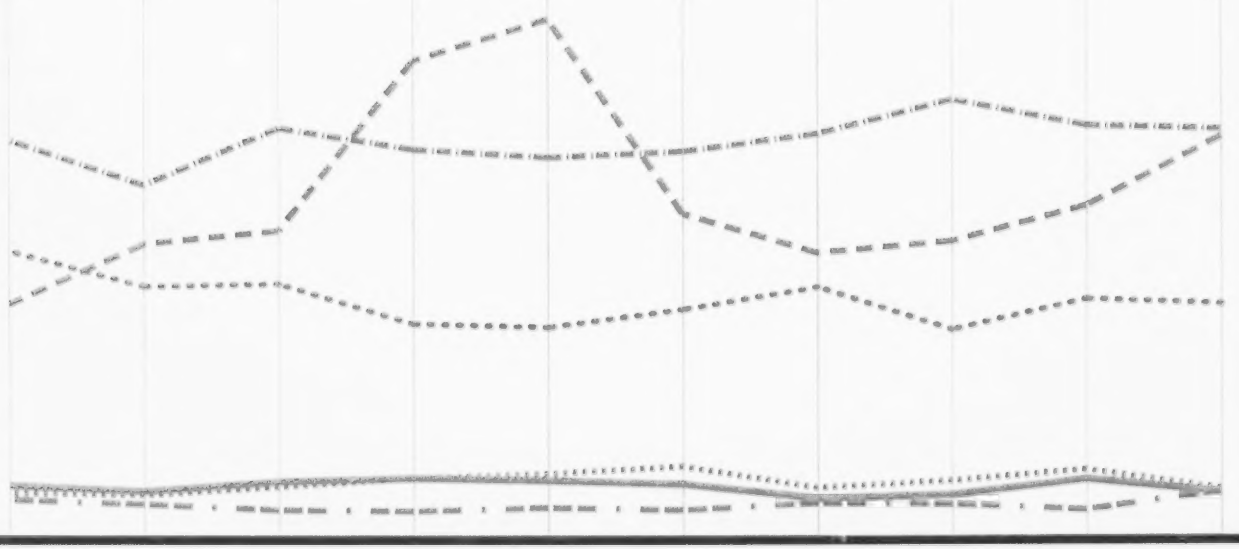


Figure 38. Number of failures by pipeline size

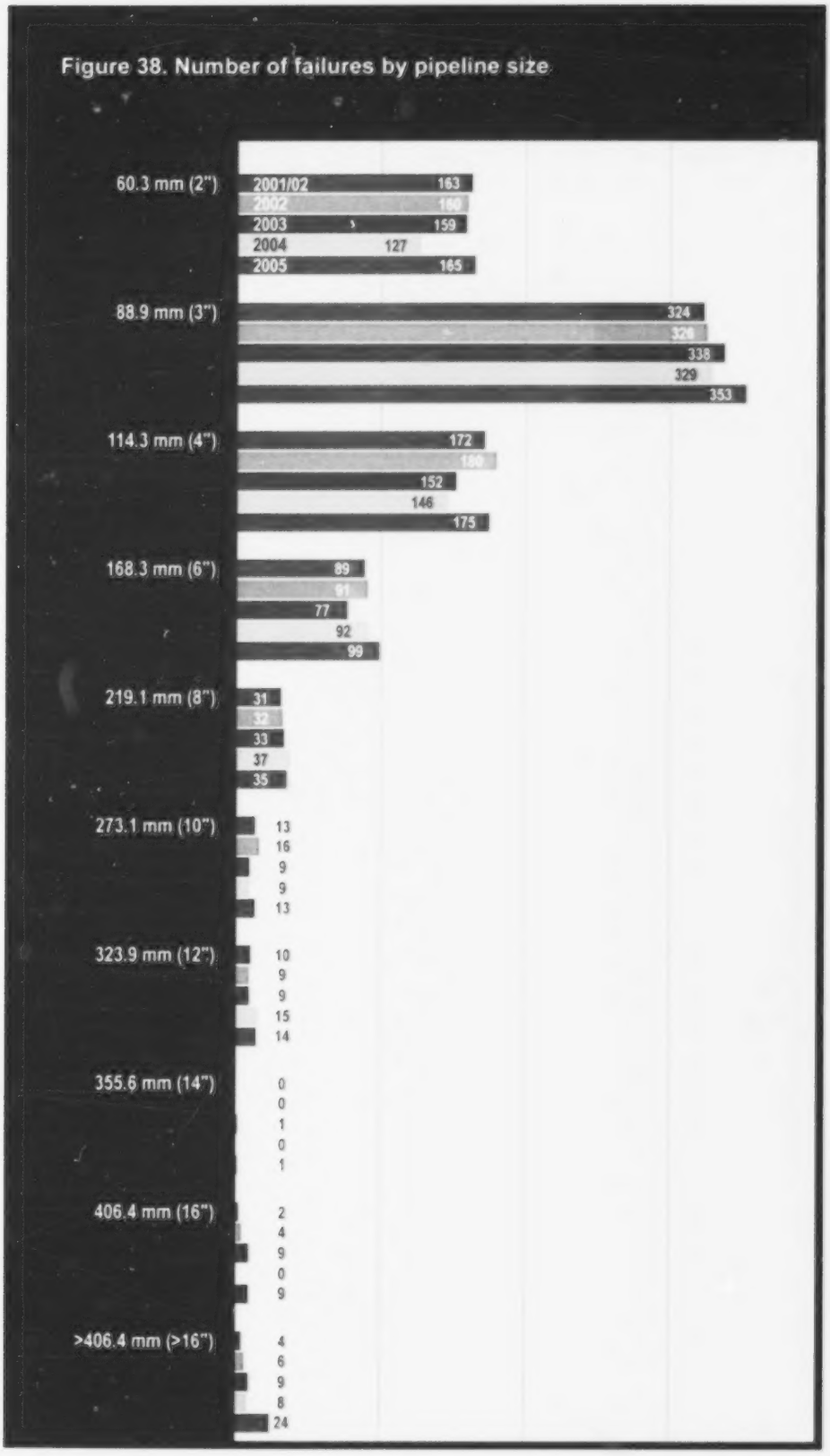


Figure 39. Failures compared to total pipeline length

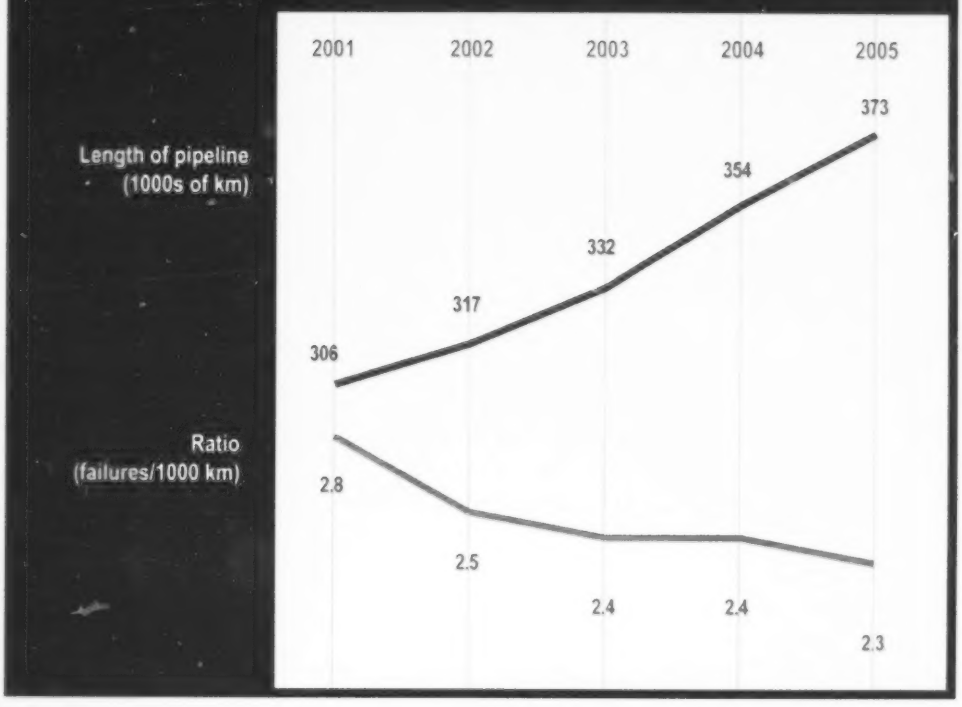
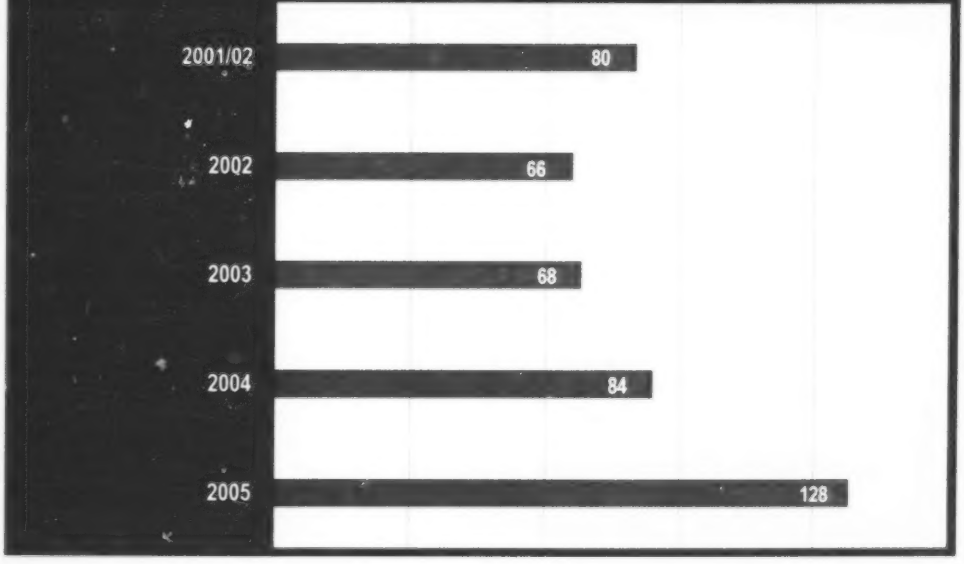


Figure 40. Pipeline contact damage



Revisions to the *Pipeline Regulation* are expected to reduce the number of contact damage incidents. The following new requirements will come into effect on May 31, 2006:

- All licensed pipelines must register with Alberta One-Call.
- Anyone proposing to start ground disturbance within the controlled area of a pipeline must contact Alberta One-Call prior to conducting the ground disturbance to advise the licensee of the work and to request the licensee to mark the location of the pipeline.
- The licensee's authorized on-site supervisor must complete a certified ground disturbance training course.

The EUB will enforce compliance with the new requirements and monitor statistics for improvement in industry performance.

9.6 Public Complaints Associated with Pipeline Operations

There were 72 complaints associated with pipeline operations in 2005, compared to 45 complaints in 2004. The complaints received were a result of odours and spills from pipeline failures and venting of gas at pigging facilities and pipeline terminals. All complaints were followed up on by field staff.

10 Environment

10.1 Introduction

Minimizing the impact of oil and gas activities on the public and environment is one of the EUB's primary responsibilities. Field staff respond to public complaints and conduct inspections on oil and saltwater spills, drilling waste disposal operations, waste management facilities, drilling and servicing rigs, pipelines, and production facilities. Staff also work with industry and other government agencies to minimize the environmental impacts from upstream petroleum industry operations.

The EUB also operates two mobile air monitoring units that support our facility inspection activities.

10.2 Spills and Releases

10.2.1 Spill and Release Statistics and Inspections

Reducing the number of spills and gas releases and minimizing their effects on the environment is a priority of the EUB. To accomplish this, licensees must ensure that

- their staff are provided with appropriate training,
- the source of a release is stopped,

- the spill is contained,
- the free fluids and solids are recovered, and
- the spill site is remediated in accordance with Alberta Environment (AENV) standards and guidelines.

Releases are prioritized to allow for an appropriate, timely, and effective response by EUB staff.

- Priority 1 releases are those that pose the most serious environmental and public impact. Field staff make every attempt to immediately respond to the location; however, when that is not possible, all attempts are made to have another regulatory agency respond for the initial assessment. In these cases, EUB staff conduct an inspection as soon as possible.

- Priority 2 releases are those where a significant volume has been released or the impact on the environment is a concern. These sites are generally inspected within 7 working days.

- Priority 3 releases are low-volume spills on site or short-duration releases of sweet gas. Historically, about 25 per cent of priority 3 spills are inspected to ensure that they are satisfactorily addressed. In 2005, 32 per cent of priority 3 spills were inspected, an increase from 26 per cent in 2004.

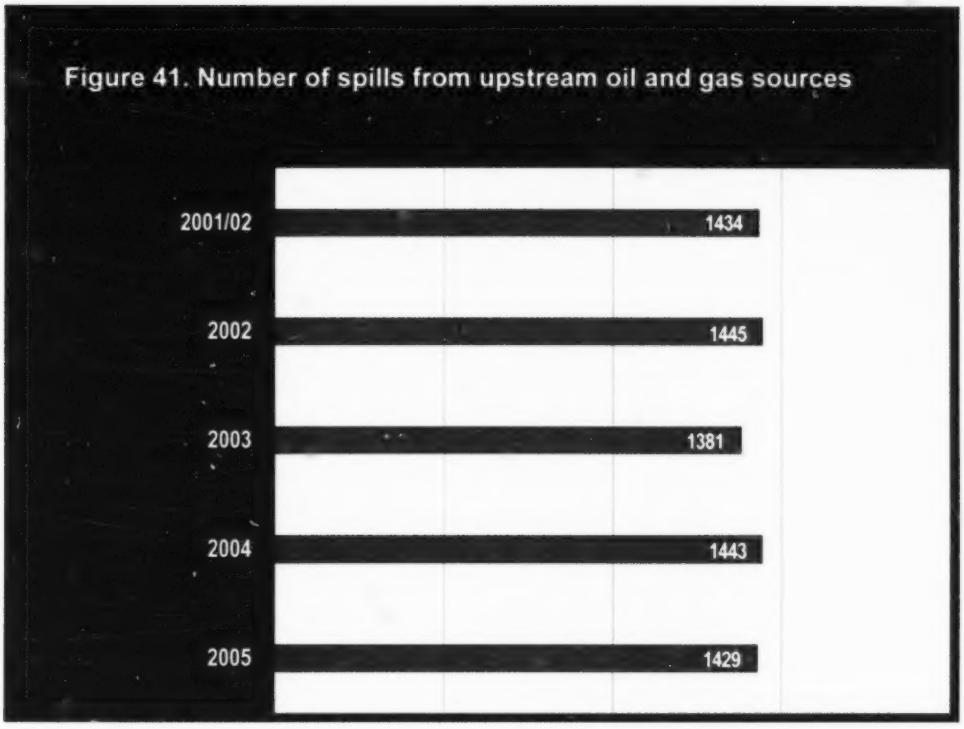
The priority of a spill or release is calculated by the following criteria:

- on-lease or off-lease spill,
- area sensitivity,
- whether release is sweet or contains H_2S,
- type of area affected,
- environment affected,
- wildlife/livestock affected, and
- affected public.

As shown in Figure 41, a total of 1429 spills were reported to the EUB in 2005, a decrease from 1443 in 2004. Of the 1429 spills,

- 62 were priority 1 (4.3 per cent),
- 247 were priority 2 (17.3 per cent), and
- 1120 were priority 3 (78.4 per cent).

Each spill is investigated to determine the cause and to identify any preventive measures that may be required of the licensee to minimize the chances of a recurrence.



It is important to note that more than 78 per cent of all spills were low volume and were contained on lease. Inspections were conducted on 689 spills, of which 583 were satisfactory inspections, 58 were minor unsatisfactory inspections, and 48 were major unsatisfactory inspections. There were no serious unsatisfactory inspections. (See Section 5.3 for definitions of satisfactory, minor, major, and serious unsatisfactory inspections.)

10.2.2 Main Causes of Spills

Equipment failure and pipeline corrosion were the leading causes of liquid spills in 2005, consistent with previous years. Figure 42 shows the most significant sources and causes of spills.

Figure 43 shows the volume of hydrocarbon and produced water spills over a five-year period. The spill volumes of hydrocarbon and produced water in 2005 were 4958.8 m^3 and 13 158.9 m^3 respectively. This is a 42.1 per cent decrease in hydrocarbon spilled compared to 2004 and a 13.7 per cent decrease in produced water spilled compared to 2004.

Field staff will continue to work with industry to improve operating practices through increased staff training, equipment monitoring, and reviewing of corrosion mitigation programs.

Figure 42. Spills by source and failure type, 2005

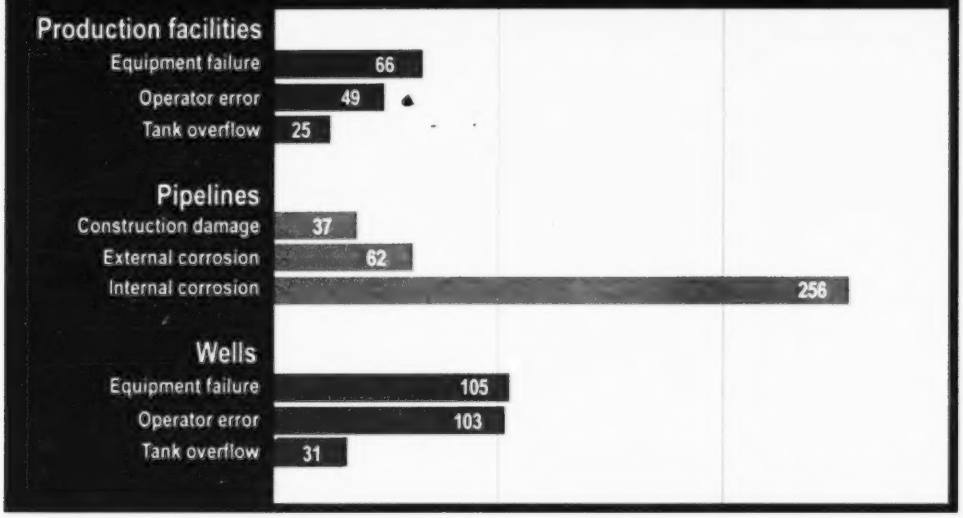
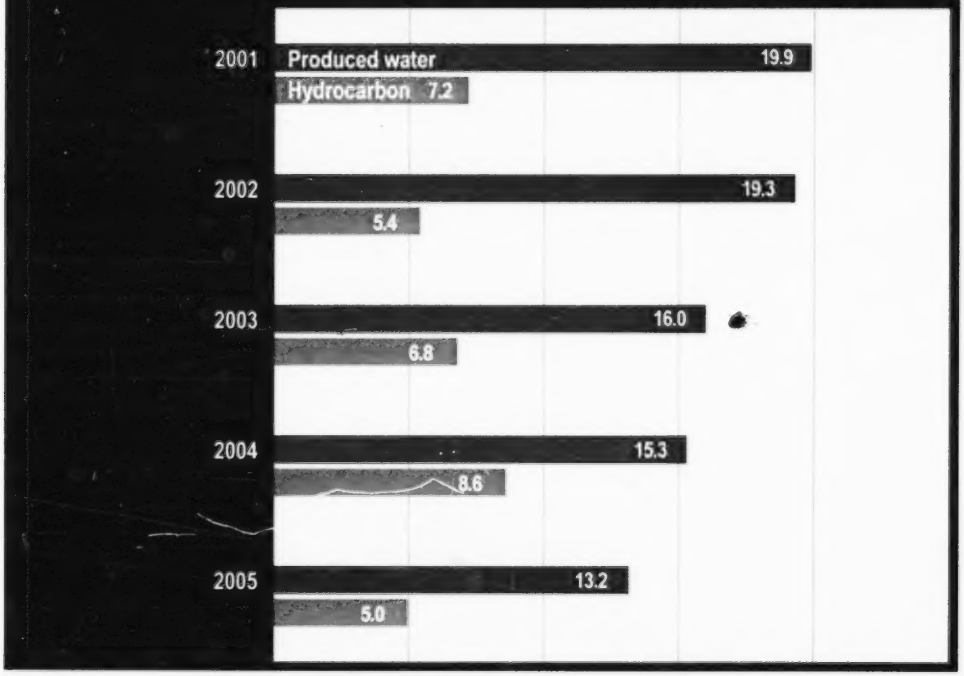


Figure 43. Reported volumes of produced water and hydrocarbon spills (1000s of m^3)



10.2.3 Spill Response Training and Prevention

Spill response training exercises ensure that industry personnel are adequately trained to respond effectively to spills, thereby minimizing the impacts. There are 17 oil spill cooperatives throughout the province, 2 of which overlap into Saskatchewan and British Columbia.

Field staff regularly participate in oil spill cooperative training exercises and provide industry personnel with information on release statistics, release reporting requirements, and regulation changes.

The EUB strongly supports the spill cooperatives and provides support to the Western Canadian Spill Service (WCSS) to enhance spill response preparedness throughout the province.

WCSS, Enform, industry, and the EUB continue to work together to improve spill prevention programs. Spill response training improves industry response capabilities and helps reduce the environmental impacts when a spill occurs. The EUB will concentrate on proactive spill prevention measures at the oil spill cooperative meetings and exercises in 2006.

10.3 Mobile Ambient Air Quality Monitoring

10.3.1 Monitoring Equipment

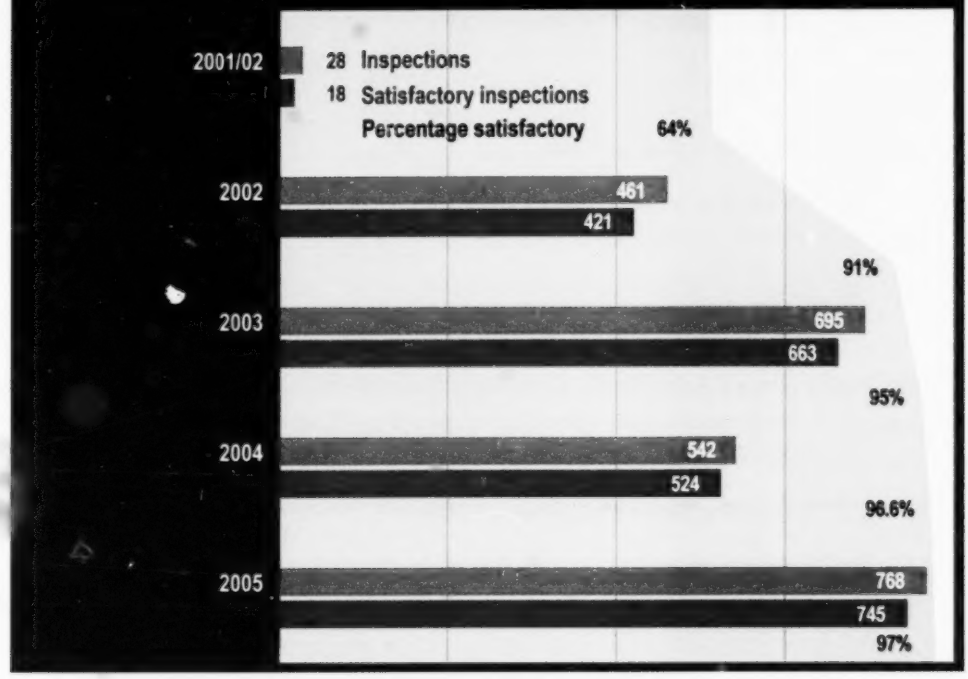
The EUB has two mobile ambient air monitoring units (AMUs) equipped with analyzers capable of reading and recording H_2S and SO_2 emissions in the parts per billion (ppb) range. In addition to the analyzers, the AMUs are capable of measuring and recording wind speed and wind direction.

10.3.2 Routine and Complaint Response Monitoring

Both AMUs assist inspection staff in identifying facilities that emit H_2S and SO_2 emissions. Figure 44 shows historical air monitoring results and industry's compliance record. In 2005 there was a 42 per cent increase in the number of air monitoring inspections conducted as compared to 2004 and there was an improvement in industry's compliance record.

In addition to conducting routine monitoring and responding to public complaints, the AMUs are on standby to respond to emergencies.

Figure 44. Number of facilities monitored and improvement in reduction of emissions



10.4 Waste Management Initiatives

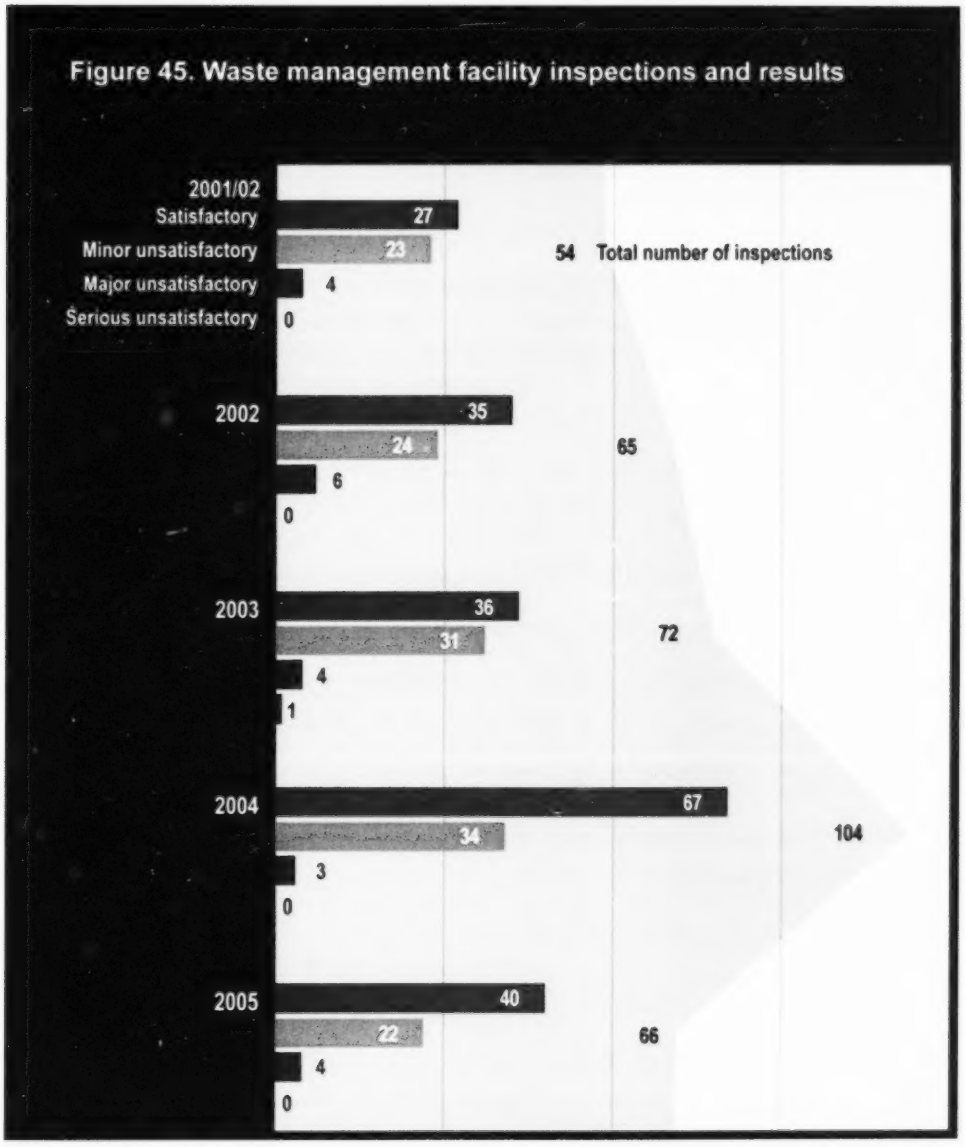
10.4.1 Waste Management Facilities

There are 101 active oilfield waste management facilities approved by the EUB. Waste management facilities, as described in *Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry,* include

- waste storage facilities,
- waste transfer stations,
- waste processing facilities,
- surface facilities associated with waste disposal wells,
- waste disposal wells (classes 1a and 1b),
- caverns,
- landfills,
- biodegradation facilities, and
- thermal treatment facilities.

In 2005, field staff conducted 66 waste management inspections, resulting in 40 satisfactory inspections, 22 minor unsatisfactory inspections, 4 major unsatisfactory inspections, and no serious unsatisfactory inspections (see Figure 45). Off-lease odours and staining/spillage were the most common deficiencies identified. All facilities were brought into compliance. This compares to 104 waste management inspections conducted in 2004. The EUB will continue to focus on waste management inspections in 2006.

Figure 45. Waste management facility inspections and results



10.4.2 Drilling Waste Management

Drilling waste disposal methods are outlined in *Directive 050: Drilling Waste Management* as being either routine or nonroutine:

- routine—any disposal that does not require preapproval (e.g., mix-bury-cover, landspray, landspray while drilling, and pump-off)
- nonroutine—any disposal that requires preapproval (e.g., land treatment, biodegradation treatments, and alternative disposals)

In 2005, 166 routine drilling waste inspections were conducted. Of those, 138 had satisfactory inspections, 12 had minor unsatisfactory inspections, and 16 had major unsatisfactory inspections; there were no serious unsatisfactory inspections. This compares to 2004 when 120 routine drilling waste inspections were conducted and the inspection results were 94 satisfactory inspections, 11 minor unsatisfactory inspections, and 15 major unsatisfactory inspections.

In 2005, 11 nonroutine drilling waste inspections were conducted. Of those, 8 were satisfactory inspections, 1 was a minor unsatisfactory inspection, and 2 were major unsatisfactory inspections. All of the unsatisfactory inspection items were brought into compliance. This compares to 2004, when 9 nonroutine drilling waste sites were inspected; 8 had satisfactory inspections and 1 had a minor unsatisfactory inspection.

The most common minor noncompliance items identified in 2005 were

- housekeeping/fencing, and
- signage requirements.

The most common major noncompliance items identified in 2005 were

- landspraying closer than allowable limits to surface water,
- waste spread on slope greater than 5 per cent, and
- inadequate sump construction.

Directive 050: Drilling Waste Management is currently under review; changes are expected in 2006.